

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

- ☒ Coloured covers/
Couverture de couleur
- ☐ Covers damaged/
Couverture endommagée
- ☐ Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée
- ☐ Cover title missing/
Le titre de couverture manque
- ☐ Coloured maps/
Cartes géographiques en couleur
- ☒ Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)
- ☒ Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur
- ☐ Bound with other material/
Relié avec d'autres documents
- ☐ Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure
- ☐ Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

- ☐ Additional comments:/
Commentaires supplémentaires:

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☒ Coloured pages/
Pages de couleur
- ☐ Pages damaged/
Pages endommagées
- ☐ Pages restored and/or laminated/
Pages restaurées et/ou pelliculées
- ☒ Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- ☒ Pages detached/
Pages détachées
- ☒ Showthrough/
Transparence
- ☐ Quality of print varies/
Qualité inégale de l'impression
- ☐ Continuous pagination/
Pagination continue
- ☐ Includes index(es)/
Comprend un (des) index
- Title on header taken from:/
Le titre de l'en-tête provient:
- ☐ Title page of issue/
Page de titre de la livraison
- ☐ Caption of issue/
Titre de départ de la livraison
- ☐ Masthead/
Générique (périodiques) de la livraison

This item is filmed at the reduction ratio checked below/
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
						✓					

ANIMAL HUSBANDRY
IN THE
KINGDOM OF ALFALFA
BOW RIVER VALLEY

SOUTHERN ALBERTA
CANADA.



FC 3658

R55

1909

P***

NATIONAL LIBRARY
CANADA
BIBLIOTHÈQUE NATIONALE



Headgates, Canadian Pacific Irrigation Canal.

INTRODUCTION.

While the venturesome may be attracted by huge, unexplored and unsettled countries, the more conservative element, particularly the agricultural class, for whose information this pamphlet is particularly compiled, prefer to wait until the explorer has done his part and the pioneers immediately succeeding him have created openings for settled industry, and have demonstrated the capabilities and limitations of the soil and climate over a sufficient number of years to lend stability to conclusions arrived at on these important subjects. The time then comes in the history of all new countries when men no longer spend their energies and cap-

tal in a more or less severe struggle for existence and when nature, vanquished by the hardihood that could not be discouraged, finally yields up the treasures she has stored in secret for century after century.

The Canadian West has now emerged from the chrysalis stage. More than a quarter of a century has passed since the intrepid pioneer farmers and ranchers braved the hardships of isolation, and the financial risks incidental to undertaking all new and untried ventures, and planted their standards on our Western prairies and demonstrated to the world that Western Canada contains within its boundaries as rich agricultural and pastoral lands as may be found anywhere and that the "great lone land" then inhabited chiefly by the buffalo and roving bands of Indians, was destined to furnish happy and prosperous homes for millions of those who are

851746

compelled to flee from the crush and competition of thickly populated districts, or who are imbued with a desire to lead the more unconventional, though somewhat more strenuous life of a new country.

Southern Alberta.

The Sirlolin of Canada.

Sunny Southern Alberta is one of the finest farming districts now available for settlement. While its agricultural possibilities are immense, its future as a live stock raising and feeding district is perhaps greater still. The valuable properties of the natural grasses on the prairies are preserved by rapid drying under the hot sun, and thus what appears brown and uninviting in the autumn, makes excellent winter grazing.

Rolling eastwards from the Rocky Mountains, the foothills extend for some twenty miles before they merge into the undulations of the vast prairie plateau of Southern Alberta, with its soil fertile and deep, consisting of a black sandy clay loam with a clay sub-soil in the Western section, and a lighter sandy loam in the eastern parts. On this vast, grassy expanse of prairie, stretching away sometimes in a smooth floor, extending for league after league, oftenest with its surface gently undulating, swell after swell to the horizon, great bands of horses and cattle, in proof of the mildness of the winter, have been the past run throughout the entire year.

Unlike some semi-arid countries, Southern Alberta is free from cactus and sage brush. Settlers on irrigated lands here can always produce an abundance of native and cultivated hay for winter feeding. It has been the experience of the largest and oldest stock raisers and feeders in Southern Alberta, that shed feeding is preferable to stabling. It gives the stock more freedom, and the mildness of the winters make expensive stables unnecessary.

Climatic Conditions.

Probably the first question given consideration when a man contemplates making a change so important as that of immigrating to a new country is the one of climate. In Sunny Southern Alberta the open nature of the country, dry atmosphere, the abundance of sunshiny days (its elevation varying from 1400 feet to 3400 feet above the sea level) and the fresh breezes that blow across its plains, all tend to make it one of the most healthful countries in the world. There is an entire absence of malaria, with no diseases of man and beast peculiar to the country. The portion of the province referred to has a continental reputation as a sanitarium, particularly for persons with a tendency to pulmonary troubles, and many, discon-

aged or over again being blessed with good health, have found it in Southern Alberta.

The winter is a season of bright, cloudless days, infrequent and scanty snowfalls, broken by frequent and prolonged periods of warm weather heralded by the "Chinook," a warm, dry wind blowing from the mountains across the plains. Its principle characteristic is its power to rapidly melt the snow. To it is due the pleasant dryness of every hollow in the prairie, even in the deepest coulees or prairie ravines. This wind rapidly clears away the snow, always scanty in amount.

In January and the early part of February, there are sometimes short periods of sharp, cold weather, but this is the exception rather than the rule. March brings in the first flowers of spring. April and May are generally fine, warm and bright. June and the early part of July, rainy and the remainder of July, with August and September and generally October and November, warm and very dry. The summer, July to September, is characterized by warm days, relieved by a never failing breeze and cool nights.

The Bow River Valley Reservation.

In the year 1894, the Government of the Dominion of Canada reserved from sale and homestead entry a tract of land containing some millions of acres located along the main line of the Canadian Pacific Railway, immediately east of the City of Calgary, in Southern Alberta, Canada. This reservation had, as its ultimate object the construction of an irrigation system to cover the fertile Bow River Valley. It was realized that this could only be successfully accomplished by so administering the lands embraced in the trust that the promoters of the proposed irrigation enterprise would not be hampered by any vested interests created through the alienation from the Crown of any of these lands. This undertaking, the greatest of its kind on the American continent, is now being pushed towards completion. It is safe to state, that if this wise precaution had not been taken early in the history of Southern Alberta, it would have been impossible to have carried out the gigantic undertaking the Canadian Pacific Railway Company now has in hand and which is not only now increasing the value of the land tributary to Calgary on all sides, but is transforming that city into the most flourishing agricultural center in Canada.

The Canadian Pacific Irrigation Block.

The Canadian Pacific Railway is now developing a Three Million acre block of land within this reservation by means of irrigation. This block contains about equal proportions of

irrigable and non-irrigable areas and offers to the purchaser an opportunity to engage in mixed farming under almost ideal conditions. Here can be secured in the same quarter section, side by side, land lying above the canal system for the grazing of live stock, the raising of winter wheat, and irrigable land for other crops, such as alfalfa, barley, vegetables, etc., requiring abundant moisture. For farm uses there is a never failing supply of water, which insures crops when the seed is placed in the ground, while the problem of a constant water supply in every pasture for the use of stock is also solved.

The irrigated portions of the land will raise all kinds of grain and root crops and a sufficient supply of fodder for winter feeding.

The non-irrigated sections will furnish the finest pasture for live stock to be found in the world and grow excellent winter wheat crops.

Combination farms in this block may perhaps be regarded as one of the best agricultural propositions on the North American continent.

The bulk of the company's grazing lands are located within the irrigation block. They are simply lands situated at a somewhat higher elevation than the Company's water distributing system. Any agricultural lands that cannot be reached by irrigation are classed as "grazing" and "winter wheat" lands. In some cases these lands are surrounded on all sides by irrigated lands, that will be disposed of for mixed farming purposes and generally in small areas. It is scarcely necessary to point out what this means. The two things that give value to land are, first, the ability of the land to produce, and secondly, settlement. There can be no doubt as to the producing abilities of our non-irrigated lands, and in view of their proximity to the Company's irrigated holdings, they are located in what, ultimately, will be one of the densest agricultural settlements in America. We are, therefore, in a position to offer investors and farmers an opportunity to purchase, at a nominal figure, land, within a district, that will, within a few years, rank among the most valuable agricultural areas in America.

Irrigation Farming.

The lightness of the rainfall some years has hitherto been the sole and only drawback which has prevented the realization of the immense possibilities of the richly fertile soil and the mild and equable climate of the Bow Valley. Soil, climate and location have been called together for the magical touch of intelligent human enterprise and industry to supply the one thing needed, that is to say, water, which is now available in great abundance. The broad plains of Southern Alberta, rich in the fertility of the soil, are watered now by large numbers of irrigation ditches and canals and the occasional lightness of the rainfall thus stands no longer in the way of this great district becoming a land teeming with prosperous farmers and stock feeders.

Irrigation is not a mere expedient for flooding the ground because it will not rain. Irrigation farming is a movement in advance on farming by rainfall. The farmer in a rainy country suffers fully as much because it rains too copiously at the wrong time, as he does because it does not rain when his crops need moisture. Rarely does the farmer want all his ground watered at the same time. Some crops thrive only when moist and some are destroyed by moisture. It is a well known fact, that there are not in the whole range of economic plants produced on the farms of America any two that would require exactly the same quantity of moisture at exactly the same stage of growth and it is equally clear, that where farming is carried on depending upon natural rainfall only, which does not differentiate, all plants are perforce treated alike, no matter how varied their moisture requirements may be.

It is strange that with the above facts clearly established, there should still be any lingering doubts present in the minds of practical farmers as regards the outstanding virtues of irrigation farming, which every thinking person must admit is the only agricultural system that ordinarily permits of the most intelligent treatment, at a very insignificant cost, of each individual crop on the farm.

In an irrigated country the farmer can generally apply the exact degree of moisture to suit any crop. The very color and texture of fruits and vegetables can be regulated by irrigation. The irrigation farmer can keep his crops growing until they have attained their maximum development, and then shut off the water and ripen them quickly. He can make the wheat berries fill by watering when the grain is "in milk." The onion raiser keeps his bulbs growing until time to ripen, then dries them off, retaining the most perfect keeping qualities. By always keeping potatoes evenly moist, they are made smooth and free from knobs and second growths.

Dairying and hog raising will, undoubtedly be most profitable on these lands. An all-irrigated farm admits of water being provided in every pasture, no matter how small the sub-division may be. Profuse pasture crops of clover, alfalfa and tame grasses can be produced without difficulty, and thus frequent changes of feed made.

One thorough irrigation annually of the native pastures of the Bow River Valley will enable them to sustain twice as many head of cattle per acre as without the artificial application of water. In addition to killing pasture weeds and promoting the growth of native grass, a considerable amount of benefit accrues from the deposit of silt and other suspended matter in the water applied.

It is also possible, after protracted dry weather to clean the pasture by means of irrigation. In the case of the pasturing of sheep, which is becoming very popular on Canadian irrigated lands, this advantage can hardly be overestimated. A cleaning of the sheep pasture is in every respect equal to a change of pasture, and the same statement holds good in a modified degree with regard to pastures devoted to other live stock.

ground
ment in
y coun-
y at the
hen his
all his
ve only
a well
f econ-
wo that
ture at
ar, that
rainfall
erforce
quire-

lished,
minds
ues of
admit
of the
ost, of

apply
y color
y irri-
owing
t, and
e can
in is
until
erfect
venly
econd

profit-
water
l the
lfaifa
thus

tures
ce as
appli-
and
ount
sus-

clean
pas-
ana-
ver-
re-
ment
de-



Where Nature Supplies the Water--A Living Spring.

The Value of Irrigation in Southern Alberta.

The following article from the "Farm and Ranch Review," Alberta's foremost agricultural paper, contains some interesting observations on the value of irrigation in Southern Alberta.

Where Does Irrigation Come In?

(FARM AND RANCH REVIEW.)

"It is amusing to listen to the various views expressed by farmers and landseekers regarding the merits of irrigation in Western Canada. The opinion seems often to prevail that 'irrigation is not needed,' all of which goes to demonstrate that the whole subject is very much misunderstood. Is there a farmer anywhere in Western Canada or, for that matter, in Eastern Canada, who would not gladly spend from 50 cents to \$1.00 per acre of crop to insure a fall of rain at such time and in such quantity as experience has taught him would be most likely to bring perfect results? We think not. Yet this is what irrigation means. In many of the Western States of the Union, farmers cheerfully pay 50 cents per acre for insurance against destructive hailstorms, and, at the same time, fully realize that drought is, after all, their arch enemy, and that it would pay them vastly better to insure against the lack of moisture at five and even ten times the premium exacted for hail insurance."

"Irrigation should be recognized as an agricultural art of very wide application and value. Its association with the idea of desert reclamation has blinded the public eye to its value for regions where the task of reclamation is not required. Irrigation is a system of improved culture to be applied, like other means of improvement, when the soil needs it. Water is the most important food of plants, not alone because it enters in such volume into their tissues, but because without it in adequate amount the plant cannot use other food in sufficient quantity. No one questions the wisdom of the saving and storing of manures, nor, in worn-out soils, the wisdom of generous outlay for commercial fertilizers. The same is true of soil improvement by means of drainage. There should be a similar feeling in regard to irrigation."

"The most diligent culture and the most generous fertilization are often made of no avail in humid or sub-humid districts where the soil is worn out, and actual loss is sometimes incurred because the farmer has not prepared himself to supply water when needed. The water, which could often be provided for a mere fraction of his expenditure for fertilizers, often for less actual cost than the interest upon his investment in underdrainage, he has neglected, to have ready for use, and he sees the hope of return for his year's labor and expenditure fade away during a

"few weeks of drought. In many cases water has been stored at great expense for fire protection, and has remained unused while valuable crops were burning up in the garden. Such losses are largely due to two things: First, the notion that irrigation is of importance only in arid regions and under desert conditions; and, secondly, ignorance of the ease and cheapness with which a farm water supply can be stored and distributed. It is most important that the value of water for irrigation should be clearly recognized all over the continent, and, wherever possible, a supply provided for each farm.

"Irrigation, moreover, is not merely a recourse to insure the safety of a crop. It has been demonstrated beyond question, both by practical experience and by systematic experiment, that growth and production can be profitably pushed by irrigation, even when the natural moisture seems ample, and in this respect irrigation aligns itself with fertilization and cultivation as a factor in intensive culture.

"Another error grows out of the large scale upon which irrigation is generally known to be carried on, involving canals and ditches too expensive for individual undertaking. The impression is conveyed that considerable capital and engineering skill are necessary to success; but as a matter of fact, profitable irrigation is in many cases easily attainable by small effort. It lends itself readily to small individual or co-operative undertaking developing water whose presence may be almost unsuspected, or utilizing water which ordinarily is either wasted or is a positive detriment when not turned to profitable service. The large number of small ditches constructed in Alberta and Western Saskatchewan during the last twenty years demonstrate the possibilities in the way of private ditch construction.

"We merely wish in this article to call attention to the absurdity of the assertion that irrigation is 'not needed.' Irrigation is as much needed, where it can be obtained at reasonable cost and maintenance charge, as is manuring or any other operation calculated to enhance the value of the farmer's crop."

Irrigation and Fodder Production.

In studying the economic side of irrigation, the first fact that must be clearly grasped is, that the foundation of any irrigation enterprise is not the production of either fruits, cereals, garden truck, or other expensive crops, but the feeding and finishing of live stock and the development of dairying in all its branches. This has been the history of irrigation expansion in every State of the Union. The following information obtained from the census reports of the United States conclusively proves the point:—

COLORADO.—This state ranks first in the irrigated acreage of hay and forage, cereals and vegetables. California is second in these crops and first in fruits. The percentage of irrigated lands in Colorado devoted to producing alfalfa and other fodder crops is 61. The value of this crop per



The Life-Giving Stream.

annum is seven and half millions of dollars. Alfalfa claims 456,000 acres in that State out of a total irrigated area of 1 1/2 million acres. The most important function of Irrigation, next to raising hay and forage for the winter feed of cattle on the public range, is the production of vegetables, fruits and other small crops.

IDAHO.—Of the total irrigated area in crops, 349,102 acres, or 68.7 per cent., were in hay and forage, and 129,854 acres, or 25.6 per cent., were in cereals. The total value of the irrigated crops was \$5,440,962, divided as follows: Hay and forage, \$3,219,156; cereals, \$1,275,858; vegetables, \$544,314; orchard fruits, \$291,007; small fruits, \$38,190; other crops, \$72,437.

MONTANA.—Of the total area in crops, 1,151,674 acres, 755,865 acres, or 65.6 per cent., were irrigated. Of the irrigated area in crop, 590,000 acres, or 78.2 per cent., were in hay or forage, and 148,671 acres, or 19.7 per cent., in cereals. The total value of the irrigated crop was \$7,281,567, of which the value of hay and forage amounted to \$4,336,311; cereals, \$1,991,741; vegetables, \$755,289; orchard fruits, \$55,383; small fruits, \$67,211; other fruits, \$55,032.

OREGON.—In the Rogue River Valley, in Jackson and Josephine Counties, hay is the only crop generally irrigated, but a number of irrigation systems have been started or projected for the purpose of supplying orchard lands with water.

The largest percentages are shown for the hay and forage crops, except grains cut green for hay, for which the percentages are about the same as for cereals. The total value of the irrigated crops produced in the state was \$3,062,926; hay and forage, \$2,030,792; cereals, \$438,812; vegetables, \$280,337; orchard fruits, \$91,971; small fruits, \$60,571; and other crops, \$160,506.

WYOMING.—The areas reclaimed in Wyoming are widely distributed, the development of irrigation being greatest in sections where cattle raising is the principal industry. The intimate relation between stock raising and agriculture is shown by the fact that 86 per cent. of the total area and 90 per cent. of the total irrigated area cultivated are devoted to forage crops. Back of the irrigated valleys are vast areas of high plains covered with rich grasses, upon which cattle and sheep graze throughout the year.

NEBRASKA.—Of the irrigated lands, 129,726 acres produced crops, and 18,812 acres were used for pasture only. Of the total crop area irrigated, 55.9 per cent. was in hay and forage. The total value of all crops produced on irrigated lands was \$982,615, of which \$488,529, or 48.7 per cent., was the value of hay and forage.

SUMMARY.—Of the total irrigated acreage in crops in the United States and territories during 1910, 3,665,654 acres, or 64.2 per cent., were in hay and forage; 1,399,709 acres, or 24.5 per cent., in cereals; 251,289 acres, or 4.4 per cent., in orchard fruits; 168,432 acres, or 2.9 per cent., in vegetables; and 226,881 acres, or 4.0 per cent., in other crops.

It is thus abundantly clear, that animal husbandry in all its branches vastly overshadows any other line of agricultural production on the irrigated farm. The evidence in support of this fact is even more conclusive when it is taken into consideration, that the bulk of the cereal crops harvested on the irrigated farms are fed to live stock there, which will increase the percentage of the irrigated area of the United States devoted to the production of feed for live stock to at least eighty per cent of the total.

Live Stock Production.

Man's first task when he turned from savagery to civilization was the domestication, breeding and raising of stock, a head of which was then the standard of exchange. The man with his flocks has kept pace with the other callings of civilization, and to-day, as a wealth producer, occupies a position second to none.

This interdependence of man and the lower orders of life has a vast economic significance. A large part of human activity is devoted to the transportation and production of food for animals and to the traffic in the products of the dairy, slaughter-house and sheep-fold, and to their utilization in various ways. The prosperity of every farm is maintained to a greater or less extent by feeding domestic animals and our railroads, our markets, in fact, nearly all our important business enterprises, are more or less dependent upon the extent and prosperity of animal husbandry.

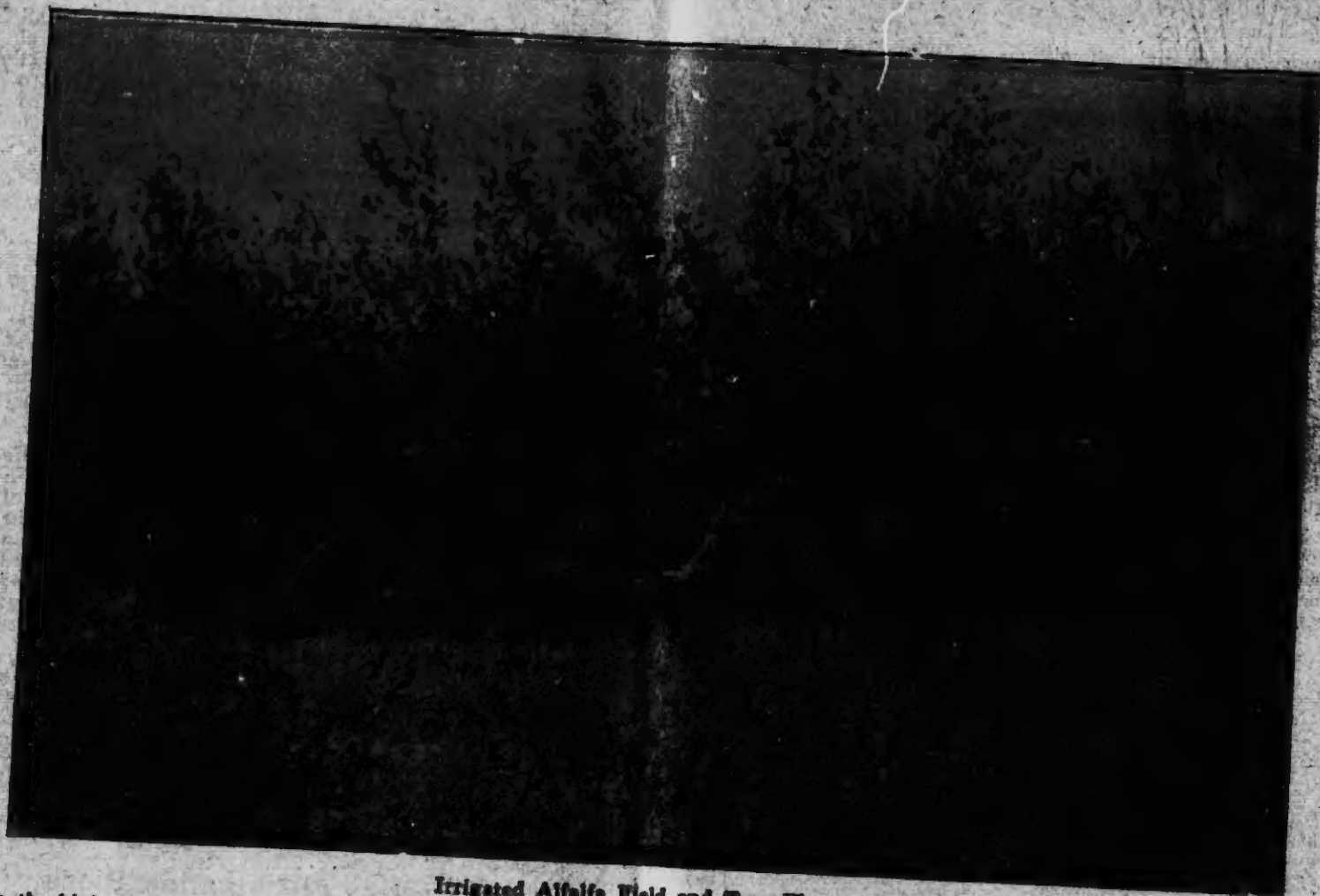
To the man who is interested in stock, its breeding, feeding and raising, there are many questions which confront him, the greatest of which is, doubtless, that of fodder and grain. With the possession of stock, naturally comes the question of feed, and with its economic solution comes profit and wealth. Given stock and its food, man may sit down and count upon his increases with no perplexing thoughts of the future.

Future Destiny of Irrigation Block.

In the exploitation of a vast undertaking such as the colonization and settlement of 3,000,000 acres of land, many questions arise, the answering of which in detail is attempted in the various other publications of the company, a list of which is found on the last page of this pamphlet. Any of these will be cheerfully mailed on request.

This booklet is designed, solely, to furnish a class of information essential to a full understanding of stock raising and feeding conditions in the Canadian Pacific Irrigation Block, Southern Alberta, Canada.

The lands embraced within the Canadian Pacific Irrigation Block are destined to serve the same purpose in regard



Irrigated Alfalfa Field and Tree Plantation.

to the highest development of the live stock industry, as do the Corn growing states, tributary to the great market centers of the Union, and the irrigated valleys of the Western States. The time is close at hand when most of the live stock produced in Alberta and now marketed in a more or less unfinished condition, will be sent to the rich alfalfa growing lands east of Calgary, there to be put into prime shape before being exported or slaughtered. A home market at highly remunerative prices will thus be made available for all the fodder that can be produced on our irrigated lands, and with the additional advantage of having the feed consumed on the irrigated farm and ultimately returned to the soil that grew it, thus maintaining the fertility for which these lands have already gained renown.

Diversified Farming.

Diversity in farming means the opposite of what may be termed the "one crop" system. It means growing a variety of products. But it does not of necessity imply that every farmer should attempt to grow every kind of crop that can be produced in his neighborhood. This would not be advisable. There is a positive danger that some farmers may fall into the mistake of over diversifying, in other words, attempting too much. In a wise diversity of production, the farmer should endeavor to grow on his own farm such products as he consumes in his household, as far as the conditions of his soil and climate will admit of his so doing.

Beyond this, he should grow a variety of products, but not necessarily a very large variety, for the reasons already given.

There are many advantages in diversifying. First, it enables the farmer to produce the greater portion of his own living with little or no cash outlay. Secondly, it puts him in a position where he is much less at the mercy of adverse seasons. Some crops which he grows may fail, but others may yield well. It also enables him better to maintain the fertility of his soil, and brings to him other benefits growing out of a wise rotation, such as distributing labor over the whole year.

Any one crop grown continuously upon the same soil without the application of fertilizers, will, in time, exhaust it of one or more of the essential elements of plant growth. Some persons seem to imagine that wheat is the only crop that will do this. But such a view is short-sighted. Any crop will do it, even a crop of clover which in some ways adds to the fertility of the soil. Wheat will rob the soil of nitrogen more than almost anything else. Potatoes will rob it of more potash, and they will do it quickly. But as soon as certain elements are too much exhausted to grow clover, some green crop for ploughing under may flourish on the same soil, and thus it is with every form of continued "one crop" production on any soil.

Diversity in Live Stock

This is one of the best kinds of diversity, as it involves growing different kinds of grain on which to feed the stock. It calls for the growth of clover, timothy and other kinds of hay, and it makes it necessary to feed these crops on the farm, hence its fertility is better maintained. It would not be wise to try and give equal attention to every different kind of live stock. But some of each class should be kept, that is to say, every farmer should keep some cattle, some sheep, and some pigs and poultry. If he keeps dairy cattle, then let him go more heavily into pigs. If he keeps chiefly beef cattle, let him go more heavily into sheep. And there should not be a single farm in all America on which there is not enough poultry kept to supply the wants of the family. When a farmer keeps a variety of stock, the animals use to better advantage the rough foods grown upon the farm than if he only kept one kind. And he is in a better position to swing one way or the other when high prices are realized for any one kind of stock.

A Word to the "Corn Belt" Farmer.

The aim and object of this booklet is to attract to the Canadian Pacific Irrigation Block in the Bow River Valley, the largest possible number of successful and experienced farmers. As is persistently pointed out in the company's literature, the main aim and object of the Canadian Pacific Railway in colonizing its Three Million Acre tract is to

create the greatest possible amount of traffic. The lands are sold on the easiest terms. The company wants the settler to put the greatest possible proportion of his capital into productive improvements. The company is vastly more interested in his success and permanency than it is in collecting from him the largest possible cash payments on account of any lands purchased. The latter is purely a side issue.

Naturally the vast majority of the company's clients come from what is popularly known as the "corn belt" of the United States. This is where the densest agricultural population and the greatest amount of agricultural wealth in America is concentrated. The "corn belt" farmer is generally an experienced feeder, or has, at least, a very intimate knowledge of the business and art of feeding and finishing live stock. He also entertains, and very properly so, a very high regard for "King Corn." In fact, he often goes to extremes, and concludes that animal husbandry cannot be a paying proposition where corn is not available as a feed. Seeing that he has been brought up under an agricultural system where corn is the backbone and foundation of animal husbandry, it is, perhaps, natural that he should form this conclusion.

Such, however, is not by any means the case. Anyone who is interested in live stock, and knows anything at all about the development of our farm animals, will not be ignorant of the important role the Scottish feeder has played in this respect. Vast improvements have been made in the live stock of the United States, but the foundation has generally been obtained from Great Britain, and has been followed by importations of stud animals from that country periodically. Corn does not grow in Great Britain. And yet the British farmer stands at the top of the tree as a feeder and improver of live stock. Even wheat does not grow in the north of Scotland. The same applies to corn in Southern Alberta. Nevertheless, the Bow Valley farmer has other feeding materials that take the place of corn, and do so very efficiently indeed.

In comparing irrigated sections with the corn belt, the productive capacity of the land has to be taken into consideration. The land values of the "corn belt" of the United States are not anywhere near as high as they are in the irrigating states. The average value per acre per annum of irrigated alfalfa is estimated to reach from \$18.00 to \$25.00 per acre, according to the season and markets available. Taking the actual annual average value of corn per acre, for the four years preceding the last decennial census, of the principal states of the corn belt, they are as follows: Iowa, \$7.59; Indiana, \$9.68; Kansas, \$5.24; Nebraska, \$6.05; Illinois, \$8.58; and Ohio, \$10.35 per acre. These values do not represent the net profits. They are the total gross value from which must be deducted the cost of production in order to show the actual profit. These figures, we are aware, are somewhat lower than they have been for the past four or five years, but, nevertheless, they are largely discounted by the value per acre of almost any crop produced in the irrigating states.

Corn Compared with Other Grains.

While corn is undoubtedly a most valuable feeding material, yet its uses are limited. As a horse feed it will never supersede oats, where the latter can be cheaply produced. Corn has not, as yet, found a place in the ration of the dairy cow, excepting in its green state. Fodder corn can be successfully raised in the Bow Valley, but alfalfa takes its place there at a lower cost. For sheep feed, corn has never been popular. The use of corn in hog raising in the United States has had the effect of ruining its bacon trade. Corn fed hogs invariably produce a large percentage of "soft" pork, which cannot be profitably sold in the best markets.

While it is true that corn is a valuable factor in almost any fattening ration, it is by no means an indispensable article for the profitable production of beef. Many "corn belt" farmers are very sceptical as to the value of oats as a fattening food. The following tables compiled from the results of recent investigations, throws some light on the subject:—

Digestible Matter in 1,000 lbs. of Various Foods.

Foods	Total organic matter	Nitro- geneous substance	Fat	Carbo- hydrates	Albumi- noids
Beans	729	224	12	493	196
Wheat	785	102	16	667	88
Oats	598	89	45	464	82
Barley	706	74	19	613	69
Wheat Bran	584	110	27	447	89
Oat Straw	410	16	6	387	111
Barley Straw	428	9	6	413	6
Wheat Straw	572	8	5	359	
Turnips	68	6	1	61	1
CORN	787	79	44	664	73

Investigation seems to demonstrate, that with the enormous crops of oats that can be produced in Southern Alberta, the necessity for corn is not apparent. Barley is also an excellent fattening feed, and is supposed to produce a better quality of meat where this cereal forms part of a balanced ration.

Oats and Barley vs. Corn.

It is quite true that neither oats nor barley will compare favorably in point of yield per acre with corn, but the difference is not anything like so great as appears at first sight. The average yield per acre of corn in the greatest corn producing State of the Union (Kansas) for the last ten years is 19.71 bushels or 1104 lbs. The average for Iowa 30.93, or 1728 lbs., and Nebraska 23.21 bushels, of 1300 lbs.

The general average for oats for the Calgary district for the years 1902 to 1908 inclusive, is 37.94, or 1290 lbs.; of barley, 27.43, or 1316.64 lbs.

Corn weighs 56 lbs. per bushel, barley 48, and oats 34. After making allowance for the increased weight per acre,

but admitting that pound for pound there is equally as much, if not more, feeding value in oats and barley than in corn, it cannot for one moment be conceded that feeding material is any scarcer or dearer in Southern Alberta than on the American side, and consequently no good reason can be assigned why the industry of feeding and finishing cattle should not, in time, be the backbone of agriculture in the Bow River Valley.

Bow Valley Grazing Lands.

That Southern Alberta is the finest grass country in America is no extravagant statement. It is a fact. This is the universal verdict of experienced stockmen visiting that district for the first time. If Southern Alberta were better known this little book would have remained unwritten. Looking back about twenty years, this region was an immense Buffalo range; but the only traces now left of these "Monsters of the Plains" are the numerous trails worn down into the earth by their passage to and from water. The value of the Bow River Valley for stock raising has long since been demonstrated.

The adaptability of a district for live stock production may be largely gauged by the quality and quantity of its native grasses in their wild state. All those who are looking for new homes and who are impressed with the fact that the best farming country is generally where the highest form of animal life is produced, will very critically examine the native herbage of any particular district they are interested in before finally changing their place of abode. In respect to wild grasses, the Calgary district is most plentifully supplied.

In the past, Western Canada was roughly divided into two great sections, namely, the ranching section and the farming section. The former comprised, practically, Southern Alberta, and the latter the balance of the Canadian West. In the early days, however, it is not to be supposed that there was no farming done in Southern Alberta or ranching in the farming section. The two divisions represent merely somewhat different climatic conditions necessitating different methods of managing live stock.

Winter Grazing in Bow Valley.

The most important distinction between these two great natural divisions is the lesser degree of humidity prevalent in the ranching section of Southern Alberta, which causes the prairie grasses to suspend growth early in the autumn, when they are subjected to a regular process of curing on the stalk during the bright, sunny fall season. Herein lies the explanation of what, to the uninitiated, is somewhat of a mystery, namely, that cattle, horses and sheep have been able to range out all winter on the snow-covered prairies of the Bow River Valley and apparently keep in good condition.

This peculiarity was first brought into prominence during the early days of settlement through the medium of the

much,
a corn,
material
on the
can be
cattle
in the

try in
This is
g that
better
Look-
mense
Mon-
n into
lue of
been

uction
of its
oking
at the
rm of
native
before
wild
d, into
d the
outh-
West.
that
ching
erely
erent

great
alent
uses
umn,
g on
lies
at of
been
s of
con-

ring
the



The Periodical Round-Up.

Buffalo, which thrive admirably all winter upon the cured grasses. Survey parties and other travellers were also in the habit of abandoning horses that "played out." Sick, injured, footsore and poor, these animals were left to live as best they might, or become a prey for the wild beasts of mountain and plain. That many of them lived through the winter and came out fat in the early springtime, proved a revelation to the man accustomed to long and expensive feeding, and forced his attention to the fact that Southern Alberta grasses must possess nutritious qualities of marvelous worth. When the white man came to stay, he brought vast herds of cattle, that thrive upon the open ranges without care and attention, on the strong, nutritious grasses. The bounty of nature, however, led in many cases to abuse and consequent losses. Ranchers, however, soon learned that

some feed had to be provided for exceptionally severe winters, and that it was not advisable to carry larger herds of cattle than could properly be handled. Meadows have now been irrigated, hay and other feed provided, and the business has thus been rendered a safe and steady vocation, which is rapidly giving wealth and independence to those engaged therein.

The Native Grasses of the Bow Valley.

"Grass is king. It rules and governs the world. It is the very foundation of all commerce; without it the earth would be a barren waste, and cotton, gold, and commerce all dead."—(Solon Robinson.)

The pride of Southern Alberta is its wild grasses, and nowhere can better quality in greater quantity be found. Not only good as to kind, but more nourishing because of the excellence of the soil upon which they are grown. The abundance of sunshine also tends to make grasses more nutritious. Nearly a hundred species of true grasses and many sedges and rushes are native, being found intermixed throughout prairie and slough, from a few inches to six feet and over in height. All these go to the making of the ranges so justly celebrated for the production of beef and mutton.

"The fact that such species as *poa caesia*, *pratensis*, *serotina*, and *tennifolia* are found, shows clearly that Canada "wherever denuded of forest is the land of butter, cheese and beef for future generations."—(Prof. Macoun.)

In the following lists are mentioned the grasses most commonly found on our ranges:—

UPLAND OR PRAIRIE GRASSES.—Beard grass, Sweet grass, Feather grass, Green stipa, Mountain timothy, Drop seed grass, Tickle grass, Oat grass, Grama grass, Western Hune grass, June grass, Blue grass, Slender leaved meadow grass, Sheep fescue, Bunch grass, Wild brome, Bearded wheat grass, Northern wheat grass, Colorado blue stem, Western rye grass, Wild barley, Downy wheat grass, Canadian lyme grass.

LOWLAND AND WATER GRASSES.—Beckman's grass, Cord grass, Reed canary grass, Drop seed timothy, Reed bent grass, Pony grass, Meadow grass, White top, Manna grass.

Analysis of Grasses.

The following table from the reports of the Central Experimental Farm at Ottawa, Canada, will show the analysis of hay composed of native grasses in comparison with Timothy and Brome, which are of recognized value:—

	Water.	Ash.	Protein (Flesh producing principles)	Fat	Carbohydrates (Heat producing principles)	Fibre.
White top.. . . .	7.20	6.02	6.75	2.24	43.61	34.18
Pony-grass.. . . .	6.65	7.36	7.00	2.75	41.52	35.88
Festuca scabrella, Agropyrum glaucum, Agropyrum caninum, and others	7.04	7.70	8.25	4.06	41.99	30.96
Sporobolus cuspidatus	6.33	6.90	5.94	2.82	49.39	28.62
Sedge	6.95	7.65	9.00	3.10	47.27	26.03
Brome	10.76	5.25	6.61	4.51	41.01	31.86
Timothy grass	9.72	4.41	5.94	5.38	43.25	31.30

Most grasses on the plains, with the exception of those which have running root stocks, may be said to be "bunch" grasses, but some species are more prominently so than others, and are very abundant in the Bow River Valley.

"Buffalo Grass" is a term applied to grasses which make a thick mat of fine blades, which curl when dry. We have in abundance two species to which the name is applied, one

is known as "Grama grass," and is held in high estimation as a range grass in the Western States, where it is found to stand trampling by stock better than any other.

Porcupine of Feather grass (*Stipa*), in all its forms, is splendid feed. Blue joint is a name applied generally to species of *Deyencia*, some of which are known as "Pony grass," because of the fondness of horses for it on the plains. One of the best and most abundant grasses is the Colorado blue stem, which is closely allied to the "Couch grass" of the east, and also proves troublesome in cultivated fields because of its running root stocks. Of the same nature is the Sweet grass or Indian hay, which analysis shows to be of great value as a beef producer.

The table given here, which is from a report of the United States Department of Agriculture, shows the relative values of several of the grasses which are mentioned above. Timothy is again used as a comparison:—

	Flesh producing principles.	Fatty matters.	Heat producing principles.	Woody fibre and ash.
Timothy.. . . .	11.36	3.55	53.35	31.74
Andropogon Scoparius	16.21	1.59	33.72	30.48
June grass	11.54	2.86	40.69	44.91
Fowl meadow grass ..	8.91	3.48	42.44	45.17
Sweet grass.. . . .	14.31	4.12	41.43	40.14
Sheep fescue	12.10	3.34	40.43	44.13

Other Native Forage Plants.

In addition to the grasses and sedges, there is found in all sections of the Bow Valley, a few dozen species of leguminous plants belonging to the various genera which comprise the pea-vines, vetches, etc., and which greatly add to the worth and attractiveness of the range. The following is an analysis of three species from a Central Experimental Farm (Canada) report:—

	Water.	Ash.	Protein or Flesh Producers.	Fat.	Carbohydrates Heat Producers.	Fibre.
Pea-vine	7.11	7.37	14.06	4.89	34.10	33.45
Milk vetch	9.46	6.02	10.75	1.54	38.78	33.45
Vetch	7.01	7.99	13.87	1.22	35.58	34.33

Other herbs on the prairie contribute a valuable quota to the available stock foods, but they cannot be individually dealt with here. Many of the native grasses do well under cultivation, especially Western rye grass, which has produced from two to over four tons per acre.

Irrigated Grass Meadows.

The fundamental crop is grass. It covers the land as with a blanket, prepares the soil for other crops, and affords sustenance for farm animals.

Grass is one of the important crops in rotation; and a rotation is essential to general husbandry if productiveness of the land is maintained. Rotations improve the farm (a)



A Corner of the Calgary Stockyards.

because the land receives different treatment in different years, so that faults of one year may be corrected the following year; (b) no one element of plant food is likely to become exhausted; (c) one crop leaves the land in best condition for another; (d) roots and stubble of grass, clover and cereals improve the texture of the soil; (e) they allow the use of clovers, which add nitrogen, and (f) bring up the food from the sub-soil; (g) weeds and pests are kept in check, and (h) labor is economized.

Next to alfalfa, timothy is the favorite grass for the irrigated meadow. Southern Alberta soil has proved itself

particularly adaptable to the growth of timothy, and returns exceedingly large yields in this crop. It forms a splendid head and stock, and grows to a good height. Three tons to the acre is no unusual crop, and it finds a ready market at from \$12.00 to \$18.00 per ton.

Last year a farmer at High River raised under irrigation a crop of timothy which he sold at \$52.00 per acre. Owing to the ever increasing activity in British Columbia and the Yukon, they will afford a growing market for the timothy meadows of Southern Alberta.

ALFALFA

King of Forage Plants.

The "Drovers' Journal" of Chicago, has the following to say on the subject of Alfalfa:—

"The hay crop is one of the principal products of the farm. In 1906, there were raised 57,145,959 tons of hay, valued at \$592,539,611, while the wheat crop the same year had a value of \$490,332,760. Hay enters largely into the live stock industry, and is a leading commercial product in supplying the food for horses in cities. Hay maintains a parity of value with corn and oats for feeding operations, and is usually fed in the proportion of one and a half to two pounds to a hundred pounds live weight of animals. Hay is regarded as roughage, and is necessary in animal husbandry to equalize the concentrated nutriment of grain."

"Alfalfa is one of the richest legumes and is economical for its large yields and feeding qualities. The cultivation of alfalfa marks a new era in agriculture. It leads clover in the yield per acre and also in its nutrient properties. It yields two to four crops per season, and should be more extensively cultivated in sections devoted to animal industry. It loves sunshine and takes vast quantities of nitrogen from the atmosphere and deposits it in the soil to fertilize future crops."

"Alfalfa is rich in protein, which makes heavy bone and strong muscles. It is relished alike by horses, cattle and sheep, hogs and poultry, and when fed to stock in the feed reduces the expense of finishing feeders for market. It is particularly adapted to fattening sheep and growing wool. Hogs thrive on alfalfa and it enters largely into the problem of producing cheap meat."

"Alfalfa renovates and rejuvenates a run-down farm. It grows stalwart roots that create humus in the soil. The strong roots strike deep into the soil, making it porous and immune from droughts. It is admirably adapted to the bee industry, as alfalfa honey is equal to the nectar gathered from the flowers of the linden."

The certainty of the irrigated lands of Southern Alberta producing alfalfa as a leading crop, opens up a vista of possibilities in many directions. During the early years of settlement in this province, the claim was made that Alberta possessed all the natural conditions to make it one of the leading live stock countries of the world. When farmers invaded the rancher's domain later on, and numerous crops of winter wheat and other coarse grains were raised year after year, Alberta's fame as the foremost stock country faded, and the world henceforth knew it only as a great crop producing district. The advent of irrigation and alfalfa will again bring the live stock industry to the front in Southern Alberta; history thus repeating itself.

Professor Fairfield on Alfalfa Growing in Southern Alberta.

Mr. W. H. Fairfield, the writer of the subjoined letter, was born in the alfalfa district of Colorado. Previous to his coming to Alberta, eight years ago, he was in charge of the Wyoming Experimental Farm at Laramie, Wyoming, and is recognized as one of the foremost American authorities on alfalfa. When he came to Southern Alberta he bought an irrigated farm, and as soon as possible put the greater part of it into alfalfa. His efforts as an irrigator have met with such success that he has recently been appointed Superintendent of the Dominion Experimental Farm located in Southern Alberta.

"Dominion of Canada, Department of Agriculture,
"Experimental Farm for Southern Alberta,

"Canadian Pacific Irrigation and Colonization Co.,
"Calgary, Alta.

"Dear Sirs:

"Replying to your recent letter asking for 'my experience with alfalfa in Southern Alberta, and my opinion as to its future possibilities as a forage crop under our climatic and soil conditions.'

"In my judgment there is a great future for alfalfa growing here; our soil is rich and deep and we have plenty of sunshine. On my private farm there are fields that are seven years old, from which we obtain two to three cuttings each year. To obtain maximum results under our conditions in Southern Alberta irrigation should be practiced, for with irrigation a heavy yield for each cutting may be counted on."

"In my judgment alfalfa will become in time the leading crop on the irrigated lands in this Province, and eventually one of the most important industries of these districts will be the feeding of cattle, sheep and hogs."

Very sincerely,
"(Signed) W. H. FAIRFIELD,
"Superintendent."

Healthy alfalfa, while growing has the deepest, living green color that ever beautified a landscape. When ready to cut an alfalfa field is a sea of fragrant, purple blossoms, making the finest bees pasture and honey known. Alfalfa hay is rich, green in color, sweet in taste. It is the "Staff of Life" in the barnyard. Horses work on it without grain. Fed to dairy cows they give their richest milk. Cattle and sheep fatten on it with only a small grain ration; even pigs eat the dry hay readily and can be pastured all summer on the alfalfa field. For chickens, finely ground alfalfa meal is sold at high prices in the east as an egg compelling nostrum. Chemical analysis shows alfalfa to contain almost exactly twice the digestible elements that a ton of the best timothy hay contains. Alfalfa is so rich that it cannot be cured except in a dry climate. In the east, the hay must and spoils in the dampness.

ng in

A letter,
to his
of the
and is
ities on
ught an
ter part
et with
uperin-
ated in

are,

experi-
as to
tic and

grow-
of sun-
that
three
er our
prac-
may

leading
tually
will be

nt."

living
dy to
soms,
alfalfa
Staff
grain.
and
pigs
or on
al is
rum.
actly
othy
ex-
poils



Purebred Hackney Stallion—A Product of Southern Alberta.

Alfalfa as a Cheap Fertilizer.

Some farmers make objection to using alfalfa as a rotation crop. They claim that the seed costs too much and that it is hard to get a stand. Many farmers, it is true, have found it difficult to get a stand of alfalfa, but the failures have generally been due to poor seed, to errors in preparing the seed bed or in sowing and, as a rule, these mistakes may be easily corrected. With good seed, a proper seed bed and land adapted to growing the crop, a careful farmer should be almost as sure of obtaining a successful stand of alfalfa as he is of getting a stand of wheat or oats.

Good alfalfa seed is costly, but it would be difficult to find a cheaper fertilizer than ten to fifteen pounds of alfalfa seed per acre. Consider: Twelve pounds of alfalfa seed at 20 cents per pound, or \$2.40 per acre, the value of six loads of manure or of 100 lbs. of common fertilizer; and after several

valuable hay crops have been removed from this acre for four or five years in succession, this alfalfa will have been worth more to the soil as a fertilizer alone than fifty loads of manure or several tons of commercial fertilizers.

Alfalfa and Soil Texture.

It is regrettable that experiment stations have not secured more definite data on the actual value of alfalfa as a fertilizer. The general experience of farmers is, however, sufficient evidence that we can hardly overestimate the fertilizing value of growing alfalfa for a few years on any soil that has been rendered deficient in humus and nitrogen by continuous cropping with grain crops for a long period.

In bulletin No. 44 of the Wyoming Experiment Station Prof. B. C. Buffum gives some data on the use of alfalfa as a fertilizer at that station. As a result of the first year's cropping on alfalfa sod, 48 per cent. greater yield of oats and 60 per cent. more wheat was obtained from alfalfa land than from the check plots which had not grown alfalfa. The wheat on the alfalfa lands yielded thirty bushels to the acre, and the oats seventy-eight bushels to the acre.

Alfalfa also improves the tilth or physical condition of the soil. The roots grow to a large size and penetrate to unusual depths in the sub-soil. Samples of roots taken at the Kansas Experiment Station were found to reach to a depth of over nine feet. At the Colorado Experiment Station, Dr. W. P. Headenden traced the roots of alfalfa to a depth of twelve and a half feet, and there are several reports in which alfalfa roots are said to have been found at even greater depths. When the land is plowed to destroy alfalfa, these roots decay, forming humus, which aids in loosening the soil and gives it a greater capacity for holding moisture and the openings in the soil left by the roots form a system of channels for the penetration of air and water in the hard sub-soil of heavy clay lands. The physical effect which alfalfa has on the soil accounts for the wheat growing ranker on old alfalfa fields for years after breaking the alfalfa sod.

The Most Valuable Western Crop.

From a study of the root system of alfalfa, one cannot fail to appreciate the beneficial effects which such a crop should have in disintegrating and loosening the hard, compact subsoil of some lands. Drawing its water and mineral

plant food from the deeper subsoil and receiving its nitrogen from the air, it actually increases the supply of this valuable plant food in the subsoil and by the dropping of its leaves and by the decay of its tubercles and roots it adds vastly to the humus contents of the top soil. Meanwhile several large and profitable crops of the most nutritious hay are harvested each year. The consensus of opinion amongst experts is that alfalfa will do more for western agriculture in the next fifty years than all the other crops which the farmers may grow in that region.

The soil of Southern Alberta is enormously rich in the mineral elements of plant food, but may in time be lacking in humus, particularly where the land has been farmed continuously to wheat or other grains for a number of years. By growing alfalfa it will be possible to increase the supply of humus in the soil and to give it a larger capacity to absorb and hold water.

However, the beneficial effect to the soil of growing alfalfa is only incidental to the rapid introduction of the crop throughout the west. The great value of the crop as a money-maker is the main factor which is introducing it into the agriculture of the West. Where alfalfa can be successfully marketed and fed, no other crop grown in the West will yield so great a net profit per acre in a series of years.

Alfalfa Hay.

The digestibility of alfalfa is changed less by the process of curing than that of any other forage plant. Dry alfalfa in the midst of summer is about as palatable to the dairy cow as the finest Kentucky blue grass. The ideal way to feed alfalfa is in the shape of hay.

The following table shows the comparative values of alfalfa hay and other common feeds, calculated upon the quantity of digestible protein contained in each. The alfalfa given the second time in the table is assumed to be equal in feeding value to the average product well cured, as has been shown by recent digestion experiments. It is seen that hay of such quality is equal to or even better than wheat bran, pound for pound.

Comparative Value of Alfalfa Hay and Other Feedstuffs for Protein.

Name of Feedstuff.	Value per ton when		
	prairie hay is worth		
		per ton.	
ALFALFA hay (average)	\$2.00	\$3.00	\$4.00
Red clover hay	6.05	9.08	12.11
Orchard-grass hay	3.88	5.82	7.77
Millet hay	2.74	4.11	5.48
Timothy hay	2.57	3.85	5.14
Sorghum hay	1.65	2.48	3.31
Corn-fodder (stover)	1.37	2.05	2.74
	1.14	1.71	2.28

Oat straw .....	.91	1.37	1.82
Wheat straw .....	.45	.68	.91
Wheat bran	7.02	10.53	14.04
Sugar beets .....	.62	.94	1.25
Mangel-wurtzels .....	.57	.86	1.14
ALFALFA hay containing 12.9 per cent. digestible protein	7.36	11.06	14.73

For stock cattle there is no better feed than alfalfa hay. The minerals contained in it are what the young animals need to build the bones of their bodies. The protein builds up their muscles, nerves and tendons, giving vitality and strength. A steer fed on alfalfa, balanced with other fodders, will be more valuable to fatten than one fed entirely upon the highly carbonaceous grains. Calves will leave their grain to pick up alfalfa stems and leaves left as refuse in mangers of dairy farms.

Feeding Value of Alfalfa Hay.

(DENVER FIELD AND FARM.)

"The philosophers have been inquiring into the secret of the alfalfa plant, and have found that the hay is, in money value 45 per cent. better than clover and 60 per cent. better than timothy. This carries out our long expressed theory that alfalfa is the greatest all round forage plant the world has ever known. To secure a good milk ration by the use of timothy hay, protein must be supplied from some other source, in order to secure a ration that will give a sufficient amount of material without entailing a loss of carbohydrates and fats; clover hay, however, is a fairly good ration in itself, and it can be economically used without the addition of any other compounds; alfalfa hay on the other hand, requires the addition of large amounts of both fat and carbohydrate in order to be profitably utilized as a milk ration.

This fact renders alfalfa even more serviceable than its valuation would indicate, since, in the management of farms, either for dairy purposes or for grain, an excess of carbohydrates is secured, which in the great majority of cases is wasted, either through lack of proper material for other sources with which to balance the ration, or through ignorance of the real loss incurred. Under ordinary conditions, 2½ pounds of protein, four-tenths of a pound of fat and 12½ pounds of carbohydrates can be profitably fed to a milch cow of 1,000 pounds of live weight, daily. One ton of alfalfa hay, containing 35.3 pounds of digestible fat, 280.1 pounds of digestible protein and 770.7 pounds of digestible carbohydrates, would furnish sufficient protein for 112 days, fat for 88 days and carbohydrates for 61 days.

"There is no way in which more net profit may be secured from an acre of good alfalfa than by pasturing young hogs upon it. One acre will sustain ten to fifteen hogs from spring to fall. If they weigh 100 pounds each when put on the alfalfa, they should be able to make another 100 pounds each from it during the season. Ten hundred pounds at 5 cents is fifty dollars, and there is no expense to be deducted. Six hundred pounds of pork from an acre of corn would be

1.82
.91
14.04
1.25
1.14

14.73

alfa hay.
animals
builds
ty and
adders,
y upon
r grain
angers

cret of
money
better
theory
world
use
other
ficient
carbo-
ration
addi-
hand,
car-
tion.
an its
arms,
arbo-
es is
sour-
ce of
unds
is of
1,000
con-
gest-
ates,
days
y be
ung
rom
on
nds
at 5
ted.
be



Purebred Clydesdale Stallion at Calgary Fair.

a good yield, and then the expense of cultivating, harvesting and feeding would make a big hole in the net profit. Pork making from alfalfa is one good road to success."

Alfalfa for Dairy Cows.

Alfalfa unquestionably holds first place among the feeds for the dairy cow. It is a happy combination of richness and succulence. It has been predicted that the cow fed on alfalfa will, in the near future, set the price of butter for the world. Alfalfa has the two paramount qualities to enable it to do this; low cost of production in localities adapted to it and the superior quality of butter produced while feeding it. Prime alfalfa hay is very palatable and being easily digested and of a very cooling and laxative tendency, has an effect on the butter fat similar to green pasture. With it the June conditions, which are most favorable to the production of the finest quality and largest quantity, can more nearly be main-

tained all summer at less cost than with any other single food. When used the problem of the "balanced ration," which is such a mystery to many dairymen, is solved.

Professor D. H. Otis, of the Kansas Agricultural College, says:—

"Alfalfa can be used in place of bran for dairy cows and is the only single feed that will make a balanced ration with corn or Kafir-corn. While feeding the hay to dairy cows at this station, we have produced butter fat at 11.9 cents per pound. When we did not have alfalfa and were obliged to balance up the ration with high priced concentrates, the butter fat cost us from 15 to 17 cents. Green alfalfa makes an excellent feed for soiling cows, or for supplementing short or dry pastures."

Alfalfa for Fattening Steers.

There are two systems of feeding alfalfa hay with grain for fattening steers. In one system the steers are fed all the grain they will eat, and then given sufficient alfalfa hay to balance the grain. With this system steers can be induced to eat large quantities of grain and make large gains. George M. Hoffman, of Little River, Kansas, in feeding all the grain and alfalfa hay his steers would eat, made a gain of five pounds per day per steer for forty-seven days. Mr. Hoffman is one of the most extensive feeders of Kansas and has been in the business for many years. With alfalfa hay and grain he does not calculate upon a gain of less than three pounds per day per steer with choice steers.

Another system of fattening steers with grain and alfalfa hay is to feed the steers all the hay they will eat and a limited quantity of grain. This system is especially valuable when the grain crop is short and expensive. Many feeders report that they have full-fed steers and put them on the market in a well-finished condition, making average gains with one-half the usual quantity of grain.

Alfalfa for Swine.

The hog is more of a grazing animal by nature than it has in many cases, any chance to be under domestication. The successful feeder, however, recognizes the fact that the most profitable gains can be made on good pasture with a small allowance of grain to finish for the market. Clover is

great favorite for hog pasture, but those who have tried both alfalfa and clover find the alfalfa superior. It stands pasturing better than clover and is a better feed. Alfalfa affords an ideal hog pasture and if judiciously treated and good hogs are raised, there is no part of the farm that will give the satisfaction that alfalfa pasture does. Ten to fifteen head of pigs, weighing fifty to sixty pounds each, per acre of alfalfa pasture in the spring, ordinarily make a gain of one hundred pounds each. This number will not keep the pasture all eaten down, and it should be mowed occasionally. To keep the pasture fresh only part of it should be cut at a time. This will tend to give rest as well as make better feed. Hogs may be left to subsist exclusively on green alfalfa, but better results are obtained by supplementing it with a small quantity of grain. Exceedingly large returns are obtained from small quantities of grain; the alfalfa being green and bulky needs the grain to balance its effect. The pasturage not only affords a cheap growth, but the bulky character expands the digestive tract of the hog, thus enabling it to utilize a large quantity of feed when the finishing period comes, which is a very important consideration. Excellent results may be obtained by cutting the alfalfa and feeding it to hogs, but pasturing is more satisfactory.

Alfalfa for Horses.

Alfalfa is extensively used for horses, both as hay and pasture. The hay alone is too rich a feed for the mature horse, and as a consequence there is some complaint attending its use, especially when the change is first made to alfalfa. It is not, however, the alfalfa, but the feeding that is at fault. The alfalfa had better be fed to other than work horses, although there are many that never have had any other forage. These live and work hard to a good old age, but it takes time to get the digestive organs accustomed to so strong a feed.

For colts or growing horses, where size and strength are sought, alfalfa hay or pasture is especially useful, as it will produce a strong and vigorous growth. It is important that horses receiving alfalfa hay should be given plenty of exercise. On the H. D. Watson 2,500 acre alfalfa ranch, near Kearney, Nebraska, a number of teams were working for a month in hot weather at draining a swamp, and fed nothing for the entire time but alfalfa hay, with very little loss of flesh.

Alfalfa for Sheep.

Alfalfa holds the same place in the estimation of sheep-growers who have used it as among cattle and hog raisers. It is, however, generally used for sheep as hay. Sheep-growers who have alfalfa hay can put lambs on the market in less time and at less cost than with any other forage. J.

E. Wing, of Ohio, prefers it to red clover, and says it is almost pitiable to watch the sheep when a change is made from alfalfa to clover. They will bleat and behave in such a way as to indicate that they consider themselves the victims of a very unkind trick. Alfalfa also increases the yield of wool.

Alfalfa for Poultry.

Alfalfa is becoming very popular as a poultry food, both green and as hay, also as silage, giving variety and succulence, which are always acceptable. The alfalfa is rich in nitrogen, which is necessary for the production of the albumen in eggs and essential to the growth of young fowls. All classes of poultry relish the tender green alfalfa, especially if they are kept in small yards. Alfalfa for winter feed should be the last cutting, which is generally largely leaves with small stems. The hay should be chopped up in some way. Using a heavy half barrel, resting on a solid base and chopping with a spade is a very cheap and practical method. Mix from a fourth to a half its bulk with grain or bran, pour hot water over the mass and cover in the steam and let stand six to ten hours before feeding. The bran is rich in lime, and aids in the production of the egg shell and the bone of young birds. The careful poultry grower finds in alfalfa a helpful friend.

The Field Pea.

The field pea of Southern Alberta is different from the field pea as it grows anywhere else in the world. It might almost be a different plant. The reason lies in the difference in the climate. Southern Alberta is high and has a temperate climate. It has warm sunshine and almost no cloudy weather at all, and the air is very dry. It is sheltered from the hard storms and blizzards by high mountain ranges so that the peas can be fed all winter. The field pea grown there is a small, hard, round pea. It is not like the "cow" pea, or "Clay" pea or "whippoorwill" pea, which is grown quite extensively in the south.

The field pea is very hardy, standing quite severe frosts without injury. Field peas in Southern Alberta are drilled in, or sometimes sown broadcast and plowed under early in the spring. The peas sprout quickly and grow rapidly. The crop receives no cultivation, but is irrigated by flooding just like grain, until the vines cover the ground and then the farmer is through working his peas.

If planted in the east, or in a hot climate, a crop of field peas would continue to grow and flourish just as long as cool spring weather prevailed, but the first warm days of summer would see the vines begin to turn yellow, the leaves drop off, turn mouldy and discolor and the pods shrivel up and drop the seeds. In the Bow Valley such hot weather never comes. All through the summer the air is cool and dry. The pea vines keep right on growing and growing. The pods that

says it is
is made
in such a
the victims
the yield of

ood, both
and succu-
s rich in
the albu-
owia. All
specially
ed should
ves with
me way.
ed chop-
od. Mix
an, pour
et stand
in lime,
bone of
alfalfa a

om the
might
differ-
has a
et no
iltered
ranges
grown
"cow"
rown

frosts
rilled
ly in
The
just
the

field
cool
mer
off,
drop
nes.
pea
that



A Bow River Valley Horse Range.

set early in the season continue green and hold their seeds, while the lengthening vines put on more and more pods. The vines roll over in masses on the ground. In a hotter and damper climate they would soon be ruined by blights and mildews, but here they continue clean and green. The first hard frost in the fall kills the vines and ripens the pods.

Here again, the climate comes to the farmer's help. With an open, warm, dry fall in prospect, it is not necessary to harvest the crop. Cattle, sheep and hogs turned into the field pick up the peas and crunch them down, eat the vines for hay and turn into fat beef, pork and mutton faster than on any other feed known.

Prof. Shaw on Bow Valley Field Pea Production.

There is not, perhaps, associated with scientific agricultural investigation on the continent of America, an expert better qualified to speak authoritatively on the growth and utilization of the field pea than Professor Shaw, who has been in charge of scientific work at a number of the leading agricultural colleges of Canada and the United States, and later on associated with the foremost agricultural journals on the continent, in an editorial capacity. While at the Ontario Agricultural College, where work in connection with field peas has been a leading feature, Professor Shaw had entire charge of these investigations. In 1900 he published his now famous book on "Forage Crops" and devoted considerable attention therein to the value of the field pea as an economic plant on the mixed farm.

In this book Professor Shaw has the following to say in regard to this plant:

"Chief among the leguminous plants, other than clover that have heretofore been grown on this continent to provide forage is the field pea, the common vetch, the cowpea and the soy bean. The field pea and the common vetch have hitherto been grown chiefly in Canada, and to a less extent in the United States. In the United States, peas are usually spoken of as "Canada field peas" whatever the variety may be. In Ontario very large areas are sown with peas every year. These are grown chiefly for the grain food which they furnish and also for the winter fodder obtained from the straw when cured. And in Ontario they are being somewhat freely grown in combination with other grain to provide soiling food for summer use, and in the unthreshed form for winter feeding. Peas are also sown along with oats or other grain to furnish pasture for sheep and swine. Peas usually succeed best in a cool and also in a moist climate in which the summer temperatures are not extreme in their variations and where the nights are cool. But a moderately cool and even temperature is more important relatively than moisture in the air, otherwise certain of the Montana and other Rocky Mountain valleys, would not be able to grow peas with and without irrigation according to the locality, and in such magnificent form. Peas may

be grown as a grain crop and with marked success in nearly all the tillable portions of the United States and Canada above the 45th parallel of north latitude, that is to say, in all places north of the latitude of Bangor, in Maine, St. Paul in Minnesota and Salem in Oregon. The highest adaptation for peas grown under irrigation is probably found in the inland valleys of Montana, Idaho, Washington, Wyoming and Colorado."

At the time this text book was written Professor Shaw had not had the opportunity of making a careful investigation of the Canadian Northwest. Five years afterwards, however, he accompanied one of the most important parties that ever toured Canada, which was composed of the editors of most of the leading agricultural papers in the United States. After having investigated the Bow River Valley, Professor Shaw was asked his opinion of the district at a meeting in the Board of Trade rooms in Calgary, when he made the following remarks:

"Contemplation of this great country is bewildering, whether viewed from the standpoint of size, or resources. In size it is an Empire. Its resources are almost fabulous in the aggregate, whether viewed from the standpoint of minerals, lumber or agricultural products. But beyond all question, the agriculture of this country will be its greatest industry through all the centuries.

"The first foot of soil in the Three Provinces is worth more than all the mines in the mountains from Alaska to Mexico and all the forests from the United States boundary to the Arctic Sea, vast as these are. The agricultural future of this country is, in itself, a great problem. The production of One Hundred Million bushels of wheat seems large and so it is, but what will the production be when every available acre of land becomes tilled? One Hundred Million bushels is merely the first fruits. What will the completed harvest be? And what will be the harvest of other products such as sugar beets, clover, alfalfa? I question as to whether you have 100 acres of red clover growing in all these Provinces at the present time, and I question very much whether you have a similar area in Alfalfa. If you are to retain your supremacy in wheat production, attention must be given to these crops which are so valuable as nitrogen gatherers, so essential to the continued growth of wheat. The idea is abroad in the land that the red clover will not grow successfully in Western Canada. At one time, that was my view. It is not so now. Small plots of clover were found by us growing successfully in all the Western Provinces, but the information obtained was meagre indeed. Notwithstanding, I have come to the conclusion that this crop can be grown over most of the area from the Southern boundary to Athabasca."

Professor Shaw, in conversation during the evening, expressed the view that on the irrigated lands of the Bow Valley, one of the great crops of the future would be field peas. He strongly urged farmers to commence producing this plant and to utilize it in connection with the feeding and finishing of hogs and sheep. He foresaw the time when the irrigated

nearly
Canada
, in all
t. Paul
highest
found
Wyo-

Shaw
estiga-
wards,
parties
editors
United
Valley,
t at a
en he

ering,
s. In
fabu-
point
nd all
eatest

.....
from
taies
The
prob-
shels
educ-
lled?
uits.
the
alfa?
over
nd I

Al-
duc-
s so
ued
that
ada.
nall
all
was
on-
rea

ex-
Val-
pas.
ant
ing
ted



Branding Cattle—Gradually Being Superseded by Fenced Pastures.

area, and the foothills of Southern Alberta, would produce thousands of acres of field peas, and when the live stock raised in the Province would be finished on the rich pea pastures and would then command the highest value in the market.

Special Features of Pea Growing

Every year that a crop of peas is raised on a piece of land, the land becomes richer and more fertile. This is because the pea is one of those plants which can draw nitrogen from the air, and store it in its roots. Land which has been altogether depleted with grain growing has been restored to full fertility by two crops of peas.

But to crown all the other advantages, when the farmer in the pea country has produced his beef or mutton or pork at one third the cost of labor it would take in the corn belt, he has a fancy product. Pea fed bacon ranks with the best English product and packers offer a premium of \$1.00 per cwt.

over the top market price paid for corn fed animals, for a uniform supply of pea fed bacon hogs. Pea fed lambs always top the market. Pea fed beef is the delight of epicures.

But as though all this were not enough for the farmer, it has been demonstrated that the field pea as now grown is only a feeble imitation of the field pea that science can grow. Experiments in seed selection carried through a single season, have shown conclusively that a field pea can be developed that will yield 75 and even 100 bushels of shelled peas to the acre.

The climate of Southern Alberta is not only cool, it is dry and sunny. The moulds and mildews which destroy the pea crop in the east are driven away by the constant sunshine. The few peas that fall to the ground remain there, dry and hard, while the rest of the crop ripens. The vines instead of turning black, cure into sweet hay. The result is that the farmer has on his fields in the fall, the equivalent, on each acre, of 50 or more bushels of corn, as well as the equivalent of two or three tons of hay.

What Field Pea Growing has done for Colorado.

Five years ago the irrigated field pea was practically unknown as one of Colorado's agricultural assets. Today, it is one of the greatest possibilities of that State. In five years it has doubled the value of more than half a million acres of irrigated lands, has increased the product of "finished" mutton and pork of the State of Colorado three-fold, and is attracting the attention of stockmen all over irrigated America.

The range of field pea growing is limited to a comparatively small section of the State. Its discovery ranks amongst the most valuable agricultural finds ever made in Colorado. About six years ago a Colorado farmer planted peas in one of his fields to replenish the soil, which had been sapped by repeated crops of grain. The peas which he intended to plow under while green got away from him, grew to full size and were covered with ripe peas. In order to get rid of the peas, the farmer turned in a bunch of sheep, only to find that the sheep had fattened in prime shape for market in an incredibly short time.

From this accidental discovery the field pea industry of Colorado sprang, but it is still conceded to be only in its infancy. The basis of the field pea industry is two fold; high altitude and a dry climate being the two requisites. The high altitude means a good climate. Plant field peas in Iowa or Illinois and they will grow and flourish just so long in the spring as the weather is cool. But the first hot days will see the vines stop growing and turn yellow. In the regions where the summer is both hot and damp, the crop is not safe even when grown. Peas are very rich in protein and consequently inclined to spoil.

HORSES

From time immemorial the horse has been man's faithful and indispensable servant. Some few years ago when they were to some extent supplanted by steam and electric motive power, a panic ensued, and the conclusion was formed that the noble animal had at last outlived its usefulness, and that presently a horse would prove a rare sight in countries of advanced civilization. Events have entirely failed to justify this view. It is true that many of the services hitherto performed by the horse are now being better and more economically accomplished by machinery. The same may, however, be said of the services of man. Through the invention of labor-saving machinery, the human race has been relieved of much monotonous drudgery, but the effect of this development has not by any means, been to decrease the value of human labor. Man has reached a higher sphere of usefulness and his friend the horse has followed him. We may, therefore, confidently look forward to a permanent demand for horses at remunerative prices.

It may, without exaggeration, be said that Southern Alberta is the natural home of the horse. Every condition is present to make horse breeding the most profitable of occupations. Excellent soil, containing an abundance of lime, the high altitude, dry and invigorating climate, just sufficiently arid in the Bow Valley to bring the horse to perfection, splendid markets south, east and west and unrivalled economy in production. No country in the world can compete with the Bow Valley in this branch of stock raising. When the horse market is dull and other countries producing at a loss, the Southern Alberta breeder can still ship at a reasonable profit. When horse values are buoyant and other countries are making a working profit, he is coining money. Why? Because in the Bow River Valley the cost of raising a horse is more or less nominal.

While it is absolutely a fact that horses can be raised in Southern Alberta at a mere nominal cost, the day of broncho "busting" is past never to return again, and the individual who desires to make a success of horse breeding must make up his mind to raise no more colts than he can thoroughly handle, halter break and stable, and have the best brood mares that his means will admit of. The breeder of horses, if he is a wise man, will devote his attention to nothing but quality. It stands to reason that horse raising on a large scale is a business beset with all sorts of difficulties. The violent system of breaking horses necessary to adopt where time is limited and help expensive, and the improbability of getting them thoroughly trained for city work and accustomed to being handled, in the short time which can be devoted to each horse, after he has spent the first four or five years of his life roaming over the prairies enjoying absolute freedom, and the indiscriminate and injudicious mating, where the numbers are too great to give individual attention to the peculiarities of each mare, these are objections which condemn the range system of horse breeding and point towards the farm as the proper place to produce and handle horses. The above remarks refer with particular force to light draught and saddle horses. The heavy draught horse is naturally of a more phlegmatic disposition and is consequently more easily reconciled to the mastery of man.

The native broncho is fast being crowded out by better bred animals. He has his redeeming qualities, but in a few years the horse stock of Southern Alberta will be so graded up that the broncho will practically be buried in oblivion. Nearly all the well known breeds of horses are today represented in Southern Alberta. The most numerous are the Clyde, Percheron, Thoroughbred and Standard bred. Thoroughbred sires from Great Britain and Kentucky, Clydesdales from Scotland, Percherons from France and trotting stock from the United States have been imported regardless of expense, and the result is that the Alberta colt will compare favorably with any in the world and find a ready market at remunerative prices.

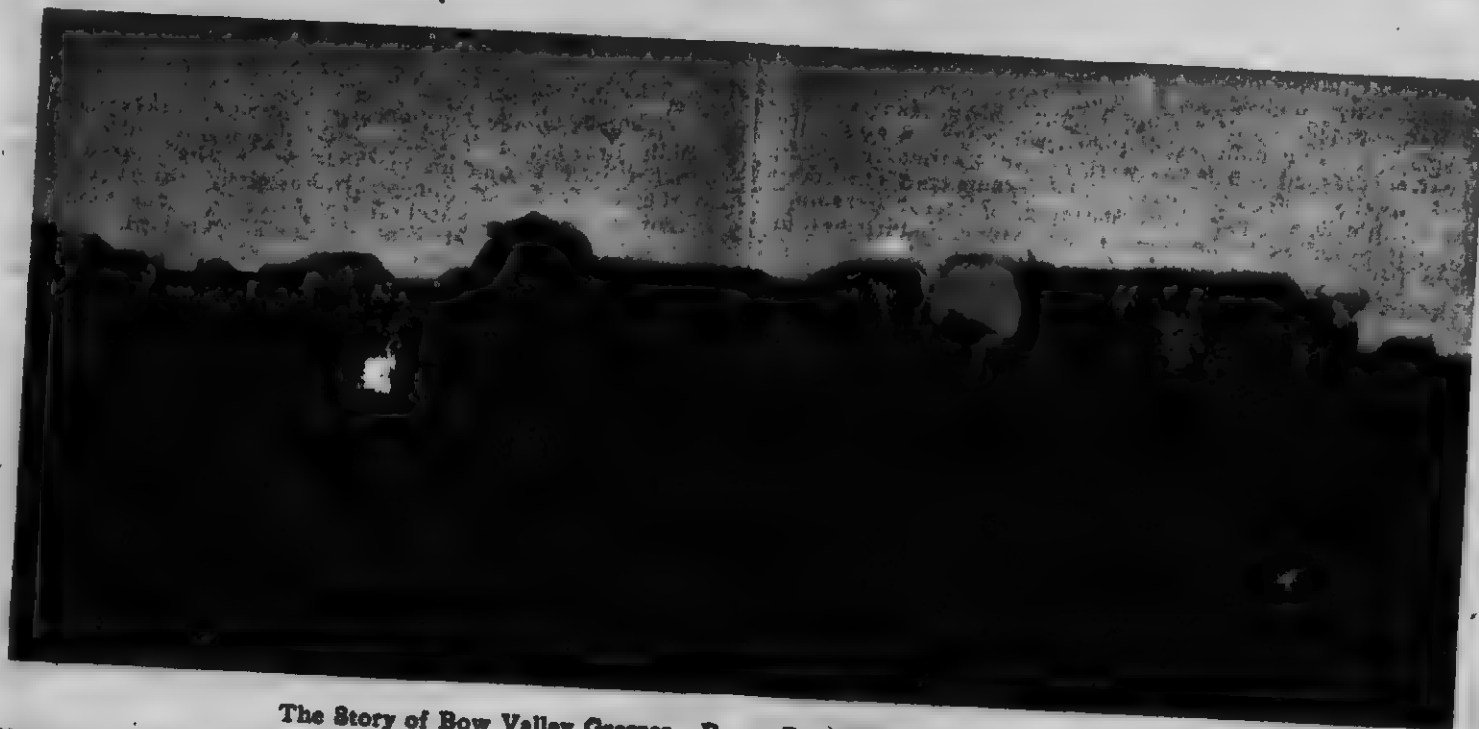
Heavy draught horses are now being disposed of at highly paying prices. Teams weighing 3,000 lbs., the average price would be \$335.00 and the value of teams between 2,000 and

ern Al-
dition is
of occu-
of time,
st suffi-
perfec-
rivalled
com-
sing.
pro-
ill ship
unt and
coining
cost of

ised in
roncho
ividual
make
oughly
brood
horses,
ing but
large
e vio-
where
ity of
stom-
voted
ars of
edom,
e the
o the
con-
wards
horses.
light
se is
uent-

etter
few
aded
vion.
pre-
the
"ho-
des-
ting
less
om-
rket

thly
rice
and



The Story of Bow Valley Grasses. Range Beef in September Condition.

2,400 lbs. is \$250 and upward, according to quality. Useful horses of other classes from \$75 to \$250. During the past year a successful shipment of polo ponies was made to England. The British War Office has recently had a purchasing party traversing the country with most satisfactory results, and it is a foregone conclusion that this visit will result in a permanent market being established for Alberta bred army remounts.

As to the ability of the Bow Valley to produce high class horses, there can scarcely be any reasonable doubt. The champion Hackney Stallion at the Pan-American Exhibition, and at the New York Horse Show the same year, "Robin Adair", came from Rawlinson Bros.' ranch, 10 miles west of Calgary, where he had been in stud for ten years. The champion Hackney Stallion at the St. Louis World's Fair "Saxon," was bred and raised on the plains of the Bow River Valley on the same ranch. It is scarcely necessary to quote further facts to prove the case.

It is difficult to conceive of a more delightful occupation than horse raising in Southern Alberta. The return for capital invested in the right kind of breeding stock must necessarily be greater than anywhere else if the business is conducted along rational lines. A few good horses can be raised upon every farm without materially interfering with the work; the new comer should, however, be careful not to embark in horse breeding exclusively, unless his capital is

sufficient to secure first class brood mares, the services of a superior stallion and good accommodation in the way of fenced pastures and outbuildings.

CATTLE

The evolution of the cattle industry in Southern Alberta is interesting, even romantic. When the Mounted Police arrived in 1873, there were no cattle in Southern Alberta, outside of the two milk cows and few yokes of oxen brought in by them. Shortly afterwards a mercantile firm imported from Montana a small band of cattle to provide beef for the police. The first legitimate breeding bunch came to the country in 1876 and from that time on, new comers gradually began to arrive.

The cattle industry of Southern Alberta has developed in three different directions: ranching, beef feeding and dairying. The earliest form was ranching which, where conditions were favorable, gradually grew from a doubtful experiment into a substantial, evenly balanced industry. Cattle ranching is still one of the leading industries of Southern Alberta and will, in many sections, continue to be so for many years to come.

The other development which, in a measure, grew out of

the first, was the production of finished beef and cattle under mixed farming conditions. Feeding steers were purchased from large ranchers and fed for export. Most feeders also had small breeding bunches of their own which, where settlement encroached and farms were fenced, became confined entirely to the owner's property. The feeding and finishing of beef cattle is, comparatively speaking, of recent development, but promises to be one of the leading industries of Southern Alberta within a very short period.

The enormous demand for dairy products that arose from the Pacific Coast and in local centres of population, finally gave rise to the development of the dairy industry. While this is, as yet, in its infancy, it would be difficult to indicate an industry with a brighter future before it than the dairying industry on the irrigated alfalfa lands of the Bow River Valley. The dairy industry has been confined, so far, almost entirely to the creamery. Cheese factories on a small scale have, however, made their appearance, and before very long there will undoubtedly be condensed milk and cream factories established within the Irrigation Block east of Calgary.

Cattle Ranching

As has been referred to in the preceding pages, out of the Three Million acre tract of land comprising the Canadian Pacific Irrigation Block, there are certain large areas where the general elevation of the district is somewhat above the level of the company's canal system. In some cases, these areas are broken by ravines and other natural features which to some extent, render the land more or less unfit for ordinary agricultural operations. These lands are classed as grazing lands. It might here be mentioned that the Canadian Pacific Railway controls all the lands within the Irrigation Block, including school lands and the even numbered sections. The result is, that for ranching purposes, the company is able to offer solid blocks of lands, in small or large areas, and at prices and upon terms that will make a particularly attractive proposition.

We have already briefly referred to the question of beef production with special references to Southern Alberta's nutritious grassea. Southern Alberta is now supplying the Province of British Columbia and the Yukon territory, in addition to doing a large export business to Great Britain.

It is a fact that the cattle of this section are of a vastly better quality and breeding than the average run of range stock in the Western States. The best pure-bred bulls are being generally used. It is an interesting fact that Calgary is the home of the largest individual pure-bred cattle auction sale in the world. This sale is held in the month of April each year, and on that occasion stockmen gather from far and near to purchase their bulls and transact other business. Shorthorns, Herefords Polled Angus and Galloways are the chief breeds, while some few Holsteins and Ayrshires are disposed of.

Improved Ranching Methods

The days of the long-horned, slab-sided range steer are rapidly drawing to a close and the professional "cow-puncher" is changing his methods and gradually conforming to the new order of things. In the early history of cattle ranching, the stock was branded, placed on the range and severely left alone between the annual roundups, when the beef was gathered and the young calves branded and turned out to take their chance until maturity, as their parents had done before them.

Conditions have materially changed and new and improved methods are the order of the day. The old happy-go-lucky style of running things has given way to careful businesslike management, with all necessary working expenses calculated to a nicety. This means that with an ordinary year the profits of a well managed ranch are large; so large that few industries can equal the ranching business as a profitable investment. Contrast the humble origin with the really immense interests of today and then try to realize that only twenty-five years have intervened. It is a remarkable progress. Last year, according to Government statistics, over 60,000 head of beef cattle were exported, to which may be added the number used in supplying the Indian contracts and in local consumption. Twenty-five years ago, the whole cattle industry of the Territories was represented by twenty-five head.

As years have passed by, it has become evident that some measure of constant care and attention can profitably be bestowed upon the stock and the gospel of live stock improvement has been rapidly spread, until today ranchers wean the calves in the fall and provide food and shelter for them during the first winter. The breeding cows are herded during the summer and mated with pure bred bulls in sufficient numbers, which are removed, kept up and fed at the end of the breeding season. This insures a larger increase and avoids the dropping of late or too early calves with the attendant losses. Close supervision is now exercised over the stock during the winter and weak cows are promptly gathered and fed.

The periodical roundups are also organized in a more systematic manner than in the earlier days, and the result is that losses on the range have been diminished considerably and the increase in working expenses, which are naturally larger than under the old system or lack of system, is more than counterbalanced by the increased profits due to the more humane and rational methods now in vogue on the cattle ranches of Southern Alberta. To convey an idea of the class of cattle now produced in the Territories, it may be mentioned that a train load of four year old steers from the Cochrane ranch, after being driven 140 miles and shipped by rail 2,300 miles to Montreal, weighed at the end of the trip on an average of 1,385 pounds.

steer are
al "cow-
conforming
of cattle
ange and
when the
ad turned
rents had

improved
go-lucky
businesslike
calculated
year the
that few
profitable
e really
hat only
ble pro-
ca, over
may be
acts and
whole
twenty-

at some
ably be
stock
anchers
lter for
herded
n suffi-
the end
se and
with the
d over
omptly

more
result is
derably
aturally
e more
to the
an the
dea of
ay be
m the
ed by
e trip



A Typical Range Flock.

Beef Production on the Farm

No line of farming affords more genuine pleasure to its devotees than does beef production. There is a feeling of satisfaction and pleasure in watching a good, hearty steer make away with his food and lay on flesh, that no other feature of farming can approach. Nor need the farmer be satisfied with pleasure alone, for where skill and judgment are exercised, good profits are practically sure to follow.

A radical departure on the up-to-date farm in the Bow River Valley, is the tendency to winter feed and finish mature steers. At the present time, the bulk of the "beef" is sold in the late summer and fall when range cattle are in the best condition and shipment is generally made direct to the British market off the grass. At the time of the year the Canadian range cattle land, the prices are usually low and every reason, therefore, exists why an attempt should be made to have a certain percentage of the cattle in condition to ship at some other time of the year, preferably the late spring and early summer. This position of affairs has led some of the more progressive ranchers to feed a certain number of their three-year-old steers through the fall and winter. These steers would probably be worth 3½ cents per lb. in the fall, which, with a live weight of 1,150 pounds, would amount to a total of \$40.00 per head. If two hundred pounds

be added to their weight during the winter, which can be done by feeding hay alone, they would, with beef selling at 4½ cents per pound in the spring, be worth over \$64.00 per head. Surely a good return for the amount of labor and feed bestowed on wintering one head of stock.

It is, of course, something new in Southern Alberta—the painstaking finishing up of a young steer—and many of those who follow this business are men who came to the Bow River Valley from the "corn belt." But they are making money and the word they send back to the Mississippi Valley has had the effect of bringing out every year more of their neighbors eager to take advantage of these golden opportunities long neglected.

The profits likely to accrue to him who feeds steers wisely and well are of two kinds. In the first place, having bought good steers at a reasonable price, he is likely to be able to sell them when fat at such an advance on cost as not only to recoup his outlay for both stockers and feed, but to leave a good margin of profit.

There is, however, one other advantage the farmer is certain to reap. Since a large amount of feed passes through the steer in the fattening process and since the increase in live weight is comparatively small and of a character to remove very little material of a fertilizing value from this food, it is available for use on the land, and, in addition, a large amount of humus forming material of the very best

kind is at the farmer's disposal. Farms where beef has been produced for years and manure utilized are invariably productive. In addition it must be remembered that the farmer by feeding beef makes for himself a home market for all the forage of every description that he can raise on his farm, and thus saves cost of transportation thereon.

Baby Beef

Statistics show that the leading meat-consuming and producing people of today are those speaking the English language. It is interesting to follow the changes that have taken place in the prevailing ideas regarding high-class beef. We are told that during the time of Henry VIII. the English people were strangers to beef and mutton and that in those days, meat was sold principally in the summer months and was worth per pound only the equivalent of three cents of our present money.

It was about two hundred years later, during the latter half of the eighteenth century, that growing cattle adapted for beef production began. The Chicago Fat Stock show of 1891 led the way in eliminating classes for three-year-olds and since that date, finished steers above 36 months of age have been the exception rather than the rule on the markets, while two-year-old steers are gradually becoming the maximum. With the reduction in age came a reduction in size which brought out the ideal butcher's beast, the "pony beef," an animal weighing from 1,200 to 1,400 when fully finished.

That this early mature (baby) beef has taken a strong hold on the consumer and is gradually becoming more popular with the producer, was plainly shown at the Chicago Fat Stock show of 1905, when the ear load class of fat cattle was represented by 24 loads of yearlings, or baby beef, against 31 loads of older cattle.

"Baby" beef is a prime butcher's beast, thoroughly fattened and ripe for the block at 12 to 24 months of age. Growth has been artificially promoted by continuous heavy feeding from birth, with the object of obtaining in the shortest time possible the maximum of well matured beef. Baby beef is a special article, in which the essential characteristics are early maturity, quality, finish and thickness of flesh.

In Western Canada centers of population are increasing in number and in size and a very large local market is being opened up for high class beef. The alfalfa meadows of the Canadian Pacific Irrigation Block will supply this demand. With the large influx of experienced feeders from the "corn belt," south of the line, the Bow Valley will soon become equally as famous for its "Baby Beef" as it is now for its prime range-fed beef.

DAIRYING.

An authority on the subject has stated that an agricultural country never reaches the maximum of development until its farmers engage extensively in dairying. Certainly

the agricultural possibilities of the Bow Valley may be estimated by its adaptability to dairy farming, even the most sceptical observer must acknowledge that it is beyond doubt one of the grandest agricultural countries in the world. It may be said that there is no portion of Southern Alberta where dairying cannot be profitably prosecuted. Important advantages are the absence in most years, of the fly and mosquito pests, and uniformly cool nights, the splendid water and the excellent market for dairy products in the mining districts of British Columbia and in the Orient. The ranchers of Southern Alberta have not; it must be confessed, in the past exhibited much enthusiasm in respect to the dairy question. It is, however, surmised that this apparent apathy is largely due to the fact, that they are making good money by devoting all their time and energy to raising wheat or beef. There can be little doubt that in the end a more diversified system of farming would be the most profitable to them and beneficial to the country; but human nature is easily tempted by immediate returns and inclined to let "to-morrow look after itself."

Dairying and Irrigation

Those who have made a close study of the question have no hesitation in predicting that the final destiny of the farmer on irrigated land in the Canadian Pacific Irrigation Block, will be the prosecution of animal husbandry in its highest forms. It would be difficult to frame up a proposition that could appeal more strongly to the dairy farmer of the easterly portion of the continent, than what the Canadian Pacific Railway is offering in the Bow River Valley. An abundance of succulent feed can be produced at a minimum of cost and with the greatest possible certainty of result. Irrigated fodder crops never fail. The land is vastly cheaper than it is in the east and the market conditions are, at least, as favorable. All the dairy products of Southern Alberta not consumed locally are at present shipped westward and sold on the Pacific Coast and in the Orient at high prices.

Furthermore, the production of winter wheat on the non-irrigated lands of Southern Alberta is making enormous strides and the City of Calgary is gradually developing into one of the biggest milling centers on the continent. The result must inevitably be, that milling by-products, such as bran and shorts, will be procurable in the Bow River Valley at very low prices. The irrigated farm, with abundant water in every pasture, grasses succulent long after the prairie herbage has dried up, cooled with the favorable climate of Southern Alberta for dairying and the unequalled markets, will surely appeal to those who are now following dairy farming in the densely populated portions of America and paying out most of their profits in purchasing feed in addition to what they are able to produce on their expensive lands.

Westward Movement of Dairying

The time was when dairying was largely confined to the small farms of Eastern Canada and the States, but, like the

star of empire, the dairy interests are moving westward. It will be readily admitted that many of the large breeders of dairy stock are still located in states and provinces bordering upon the Atlantic. Some of the best herds and some of the great producing individuals are still to be found in that portion of America. It is true, nevertheless, that the dairy sentiment and the dairy center is rapidly leaving the east. Oriental governments are awakening to the industrial value of the dairy cow and are doing what they can to foster the sentiment in her behalf among their farming and commercial people.

A great deal is said about virgin soil, but this class of land is gradually disappearing. We must sustain the productivity of our fields and the only way to do this is by the liberal use of barnyard manure. The dairy cow is the salvation of the soil and, consequently, the demand for dairy stock is rapidly increasing. Farmers all through the West are now beginning to call for grade and pure bred dairy stock.

Creamery Organization of Alberta

The creamery organization of Alberta is one of which we are justly proud. It has been pretty well demonstrated in past years that individual butter making and butter marketing will never place a country in the front rank of butter producers. The phenomenal success of Denmark, since co-operative dairying was brought to a state of perfection there, well illustrates the point.

Some years ago our dairymen became dissatisfied with the private creameries which were then in operation throughout the country, and asked the Government to take charge of these institutions. The Dominion authorities fell in with the request, placed experts at their disposal, and eventually organized a chain of co-operative creameries all through the country. These institutions are subject to the control of their patrons, through a board of directors, under absolute government management. Most of the patrons separate their milk at home and bring their cream to the dairy station three or four times a week. The cream is then carefully tested and weighed and at the end of every month, each patron gets credit for his equivalent in butter and receives a cash advance of ten cents per pound. At the end of 30 or 60 days a cheque for the balance due each patron is sent him from the Department of Agriculture. A uniform charge of four cents per pound is made by the Government for manufacturing, and one cent per pound is also deducted to create a fund for purchasing buildings and machinery, of which the patrons become part owners to the extent of the amount contributed in this manner. The Provincial Government maintains at Calgary the largest and most important "dairy station" and cold storage in the West. Any settler having the means to procure a few milch cows can thus insure a cash income from the first day he starts on his land. The butter is sold principally in British Columbia and the Yukon. A trade is also being developed by the Government in China and Japan.

This creamery service is now under the control of the Provincial Government of Alberta.

The year 1908 has been the most successful dairy season since creameries were established in Alberta. From less than four hundred pounds of butter in 1902, the output has steadily increased until 776,241 lbs. were manufactured in 1908, which was sold at an average price per pound of 25 1/4 cents. The following table will show the volume of increase in output during the past five years.

Year.	No. Creameries.	Lbs. Butter Manufactured	Value at Creameries.	No. Patrons.	Average price at Creameries.
1904,	9	416,195	\$85,565.34	600	20.54
1905,	12	813,430	173,671.40	1,217	21.35
1906,	18	1,050,356	222,959.11	1,755	21.23
1907,	21	653,208	151,290.28	1,267	23.16
1908,	21	776,241	197,411.24	1,370	25.43

Our Dairy Combination

Here is our dairy combination: A never-ceasing abundance of the best food for cows; our marvellous native grasses, alfalfa, peas, abundance of fresh, pure water, absence of mosquitoes and flies, and our provincial creameries taking charge of the cream and manufacturing it into butter and seeking the best market, all at a nominal charge of four cents per pound, a cheque to the farmer the first of every month and a home market already greatly in excess of the production and constantly and rapidly increasing.

Not so very long ago dairying in Southern Alberta was regarded by many as a mere makeshift, a present necessity to provide a little ready cash, to be abandoned as soon as the stock and grain output became sufficiently large to supply the necessities and comforts of life. But it is rapidly becoming recognized as an industry in the Province and one which gives both ample scope and satisfactory returns for the ability and intelligence devoted to it by the dairymen.

SHEEP

In Southern Alberta sheep raising is carried on under two widely different methods. Where general agriculture is pursued sheep raising is carried on in much the same way as in the East. Some farmers have small flocks, which are kept in enclosed pastures during the summer season and are fed in more or less inclosed sheds during the winter. Sheep raising on a large scale is carried on entirely under the ranching system.

The Farm Flock

No class of live stock does better, is more profitable, or gives quicker returns in the Bow River Valley than sheep. The only reason that more small flocks are not kept is simply that settlers have not given the sheep industry serious

thought. Mutton commands a high price, twelve to fourteen cents per pound dressed being no uncommon figure for mutton for local consumption and Southern Alberta does not begin to supply the home market. Twenty-five thousand carcasses from Australia and as many live sheep from the United States are annually imported to meet the local demand. This is an unsatisfactory state of affairs, as Southern Alberta, by paying attention to sheep raising, could easily be in a position to export instead of import. The British Columbia market alone is a large item. Mutton is a scarce commodity and as settlement increases it will become still scarcer unless there is a movement towards sheep farming.

Every farmer in Southern Alberta might keep a small flock of sheep with very little trouble and expense, and we are convinced that nothing he handles would give him a greater proportionate profit. This statement is borne out by the experience of those who are now keeping small flocks. During the past fifteen years the writer has kept sheep in Alberta, and would not be without them. His flocks have run from fifty to two hundred head. The former number is to be preferred, or at least a number not exceeding a hundred.

The Sheep Pasture

If one does not intend to keep too large a flock he should build a dog proof wire fence which will cost between fifty and seventy-five cents per rod and will soon pay for itself. The writer erected a mile and a half of dog proof fencing, twenty-six inches high, and which cost forty cents per rod. Wire netting was put at the bottom and above it three strands of barbed wire which gives the necessary height and keeps heavier stock off the fence. Netting fifty inches high could have been purchased for fifty-five cents per rod, which, with one or two strands of barbed wire on the top, would have answered the purpose very well.

In choosing a pasture, a situation that has high and dry land in it should be selected, but sheep must have water at all times. Sheep may occasionally be turned out of the pasture and herded; they are easily trained to graze over a particular area. This will be a beneficial change for them. A shed with an open front and a board corral is quite satisfactory for winter quarters. A close, warm house is not good. Sheep naturally have a high temperature and a thick coat of wool, which prevents the easy radiation of heat from the body. They prefer a cool place if it is well sheltered.

Breeding Stock

The grade flocks generally have a cross of Merino in the ewes. Grade Lincoln and Shropshire backs are often used but the wide awake farmers are finding out that it is a better investment to buy pure bred male stock. The lamb crop from these small bands is usually heavy. One farmer raised 130 lambs from 100 ewes.

Lambs do well arriving from the middle of April to the beginning of May. Ewes carry their lambs one hundred and forty-seven days. If the ram is turned out on the fifth of December, the lambs will come on the first of May. Those who desire earlier lambs for the sake of having them more fully matured at the opening of winter, will have to provide more commodious quarters for lambing time.

Prices today are high, and the number of breeding stock offered very small. If prices weaken a little south of the line, it may be possible in the near future to buy a little cheaper, but in Alberta yearling ewes cannot now be bought for less than \$6.00 each. In carload lots the freight would be about 50 cents per head, otherwise about \$1.00. With the recent establishment of woollen mills in Alberta the local market for wool will be equal to any in America.

Mutton for the Household

It is a splendid thing to have a few sheep on a farm, if for no other purpose than to furnish meat for the family. The farmer should seldom or never have to buy any meat. He should raise it himself. A few fowls in a cheaply built hen house; a few sheep wintered in a shed made of poles and made warm with hay or straw; a bunch of pigs kept in a warmer place and a young beef to kill in the fall, and a farmer can supply his own table meat all the year round. Every dollar saved in raising meat for the family is a dollar gained.

Sheep as Weed Killers

There is no kind of stock upon the farm that will compare with sheep as weed-killers. When weeds are young, sheep will feed upon any kind and every kind of weed. There is scarcely a single weed known which they will not crop down and turn into mutton if they can only get at it. And no better use can be made of weeds than to turn them into mutton.

Sheep as Enrichers of the Land

No kind of stock has ever yet been introduced upon farms which have been found so efficacious in enriching the same. It is an old proverb that "the sheep has a golden hoof." The fertility which they bring to the soil is responsible for this proverb. Sheep serve to enrich the land wherever they tread it. With some kinds of live stock, the droppings are deposited in heaps and much of the same are washed away by rains or dissipated by insects; but the droppings of sheep are distributed evenly over the soil and, as they are constantly on the move, their tread they plow down into the ground with their hoofs. Thus it is that the land is invariably benefitted wherever sheep feed.

To sum up, farmers' flocks have and are proving very profitable in the Bow Valley. Ample feed and shelter will

pay. In buying breeding stock, two or more farmers should combine and buy in carload lots to save freight.

The Ranch Flock

As has been pointed out under the heading "Cattle Ranching" the Canadian Pacific Railway has for sale certain large areas of grazing lands located contiguous to irrigated alfalfa lands, which will make almost ideal locations for sheep ranches. These lands may be sold en bloc at low prices and on very easy terms to those who purchase with a view to utilizing such properties. The natural herbage upon the non-irrigated grazing lands in the Bow Valley, being short and fine, is much relished by sheep and suitable for the production of mutton of excellent flavor.

The present range sheep differ widely from those reared in the east. The foundation stock is chiefly Merino. The stock from these naturally yield small carcasses and heavy fleeces. In recent years, Down and Long-wool sires have been introduced with a view to increasing the weight of the carcass. The range flocks vary in size from two thousand to twenty thousand head. They are grazed under the care of herders the year round in bands of from two thousand to four thousand head. In winter they are expected to rustle a living, which they can usually secure with a little assistance on the part of the shepherd. If the snow should, at any time, become deep or crusted, a snow plow is used to uncover the grass, or a small allowance of hay or oats may be fed until the mild chinook winds remove the snow from the prairie. In earlier years no winter feed was put up for range sheep. Lambs were dropped on the prairie during April and May, frequently without shelter. Usually under such conditions from 70 to 80 per cent. of the lamb crop was saved.

Taught by experience, flockmasters of the present day, put up a greater or a less supply of feed, and nearly all have sheds for the protection of the flocks when required. It is the rule with the more successful ones to put from 25 to 40 tons of hay for each thousand head of sheep in addition to a good supply of milk.

The Lambing Season

The lambing season on the range is a very busy one for the shepherd. He may have charge of from 500 to 2,000 head of ewes. At night they are inclosed in a shed or corral. As soon as a ewe has dropped her lamb, they are both placed in a compartment of the lamb wagon. When the wagon is full it is driven to the shed and the ewes and lambs are put into small enclosures. Here another man in charge sees that the lambs suck, takes care of the weak ones and provides suitable food and water for the dams.

As the lambs grow older, the ewes are gathered into large bunches, until at six weeks old they may all be thrown into one flock.

The Wool Clip

The wool side of the range sheep industry is a very important one. In no part of Canada outside of the range area can fine wool be obtained in large quantities, and it is to the range country that many of the eastern tweed manufacturers look for their supply of fine wool. More recently Down and Long-woolled sires are being used for the purpose of improving the carcass. This, naturally, is bringing about a change in the character of the fleece, which is becoming coarser with each succeeding mutton cross.

The shearing of Alberta flocks is done by contract, the price paid being $7\frac{1}{2}$ cents per head. A gang of shearers consists of from a dozen to twenty men, who shear from fifty to a hundred sheep each per day. The sheep shear from 6 to 9 pounds per head. Each fleece is tied separately and the fleeces are tramped into large sacks about fifty to a sack. A number of the more careless operators tie the fleeces with cord, but those who have regard to the requirements of the trade use the twisted wool band to bind the fleece.

Market Values

Prices for range wool have gradually increased during recent years. Previous to 1903, the clip brought from 6 to 10 cents per pound. In 1906, as high as $17\frac{1}{4}$ cents was paid, while the clip of 1907 sold at an average of 16 cents per lb.

Mutton is also showing a fine advance in value. In 1904, \$3.15 per cwt., with a five per cent. reduction for shrinkage was paid. In 1906, \$5.00 per cwt. was not an uncommon price for moderately good stock, while in 1907, \$7.50 live weight was reached for well-fed butcher's sheep. Lambs in 1904 sold at \$1.75 to \$2.00 per head; while three years later the price had reached \$3.00 to \$3.25 per head, and comparatively few ewes were for sale early in the season at this figure, since the demand for ewe stock for the breeding flocks was strong.

An Expert Opinion

There is probably no country in the world, where sheep raising on a large scale has been so highly organized as in New Zealand. It is by long odds the main industry of those islands. Many years ago a Mr. Neill, immigrated to New Zealand from Great Britain and became the pioneer flock-master there. He prospered greatly and in due time his sheep increased to the enormous number of thirty-five thousand. Mr. Neill was generally regarded as one of the shrewdest business men and most experienced flockmasters in New Zealand.

His son, Mr. Foster F. Neill, of Otago, New Zealand, was born and bred on his father's estate and from his childhood became associated with sheep growing on a large scale. Some year ago, Mr. Neill, Jr., became imbued with the

idea that a favorable field presented itself in Southern Alberta, Canada, for sheep production and he determined to investigate the matter personally and carefully. Accordingly, Mr. Neill took passage to Canada and reached Calgary during the summer of 1903.

Mr. Neill made one of the most careful and painstaking investigations into the resources and conditions of Southern Alberta with a view to determining the adaptability of the country to sheep raising. He spent the better part of a month visiting every point in the Bow River Valley where sheep were being raised and he also carried his investigations into the more southerly portion of the Province. He was there for one purpose and for that purpose only and allowed nothing to stand in the way of obtaining the best information and forming the most intelligent conclusions that he was capable of, bringing to bear upon his investigations an accumulated experience in sheep growing extending over his entire lifetime and gained under the supervision of his father, one of the sheep magnates of the premier sheep producing country of the world.

Mr. Neill's impressions are given below in a letter to the "Farm and Ranch Review," of Calgary, after his return to New Zealand.

Mr. Neill in his communication to the "Farm and Ranch Review" did not confine himself to stating his impressions of the Bow River Valley and Southern Alberta generally as a field for sheep production, but also added his views as to the proper manner of handling sheep on a large scale under the conditions there prevailing. As our space is limited we have not quoted the latter portion of Mr. Neill's letter, a copy of which, however, we will be pleased to forward to any person interested, on application to the company's head offices at Calgary.

A New Zealander's Impression of Southern Alberta as a Sheep Raising Country

By Foster F. Neill, Otago, New Zealand

(FARM & RANCH REVIEW.)

"Without an intimate knowledge of the general climatic conditions of Southern Alberta, it is, of course, a difficult matter to lay down in theory what should be aimed at in practice in sheep raising there. There can be little doubt, however, that so far as the primary factors are concerned, the conditions for sheep raising in Southern Alberta are favorable to the industry, and the following impressions, after some years in the business throughout the Colony of New Zealand, and a somewhat short visit of inspection to Alberta, are given for what they are worth.

"The soils of Southern Alberta are the very thing to suit sheep and in the Colonies of New Zealand and Australia, the soundest sheep country is always found in soil

"of this nature. The grasses to be found on the lighter lands, that is what is generally known as "short grass" country, are in all respects ideal sheep grasses. Nothing could be better than Buffalo Grass, while the bunch grass is very similar to the blue tussock, the finest sheep feed that grows in New Zealand, and Southern Alberta has a wealth of these wild grasses that is not, perhaps, surpassed by any other country in the world.

"So far as the grasses on the heavier lands are concerned, in the absence of some practical knowledge it is a difficult matter to form any idea as to how sheep would thrive on these and how far the effect of grazing them in a scientific way under fence may tend to sweeten them.

"Just how far these wild grasses are capable of standing stocking with sheep is another matter upon which it is difficult for me to express an opinion in the absence of practical experience, but in this respect they should be better than the native grasses of New Zealand. The finer grasses, the blue and white tussock, growing in New Zealand, which correspond to the buffalo and bunch grasses of Canada, are all very shallow rooted and there is not one in the lot as good as *Poa pratensis*, with the result that in New Zealand between the rabbits and the sheep, they are now nearly all eaten out. With careful systematic handling the pastures of Southern Alberta should carry sheep well and with reasonable care they should not become eaten out and destroyed by overstocking, as has been the case to a great extent in New Zealand.

"Two primary factors in sheep raising are an abundance of sunshine and an abundance of running water. The former Alberta has to a very marked extent, but there is a serious drawback through the lack of the latter on many of the best sheep tracts in Southern Alberta, although water could be easily conserved into the coulees by draining at a very small expense, and in this respect, it is far ahead of most of the Australian sheep country; while New Zealand is, of course, a country quite unique in respect to its water supply for stock.

"My remarks with regard to water supply do not, of course, apply to the Bow Valley Irrigation Block, where on the irrigated lands an abundant supply of water may be obtained at any time during the season.

"Through the greater part of the year the climate is suitable for sheep, the constant sunshine and dry atmosphere are just what they love and providing the sheep are of a dense wool type, they are not affected by extremes of heat or cold, provided always that it is dry. Putting aside, therefore storms, and more particularly those that may occur in the spring accompanied by cold rain, the climatic conditions of Southern Alberta may be considered as particularly favorable for sheep raising.

"To make a general comparison of Alberta and New Zealand as sheep raising countries is impossible, seeing that so great a part of New Zealand has an ideal climate for the industry, but at the same time there are large areas, more particularly in the McKenzie country, South Canterbury,

"and in Central Otago (and these comprise some of the very best sheep raising districts) where the conditions are not unlike what they are in Alberta."

The Outlook for Sheep.

Without a doubt a bright future awaits the sheep industry in Alberta. There is bound to be a growing demand for the products of the flock. As years pass, the ranges with their wholesale and rather rough methods of handling, will give way to more numerous but smaller flocks. This will make possible and profitable better attention to housing and feeding in winter. With the production of tame hay, including alfalfa, and large yields of coarse grains upon the farms, the sheep will be fed and sent to market in a finished condition. The question of fencing, that has stood in the way of sheep raising, will of necessity receive that attention that mixed agriculture on smaller farms requires. Many who do not fence for their flocks, will combine with their neighbors in having several flocks herded together during the summer where suitable range and water can be secured. Early maturing lambs will be raised and sheep farming will become a valuable staple industry of growing importance from year to year.

SWINE

It is undoubtedly a fact that the tendency on the part of the average farmer in Southern Alberta, is to belittle the value of the by-products of the farm. These men have hitherto been doing things on a large scale. Farms in the West are generally extensive and in the Bow Valley have been extremely profitable and under the circumstances it is not to be wondered at that the smaller sources of revenue on the farm often fail to appeal to them.

In order, however, to enjoy an even and permanent prosperity, the farmers of the Bow River Valley will, to a large extent, engage in swine production in the future. It is reasonably certain that amongst the various forms of meat production for which the Bow River Valley is destined to become famous, the swine industry will occupy a conspicuous place. Climatic conditions are most favorable to it, the grains produced are suitable and the class of settlers who are going into occupation of the district are largely men with the experience necessary to make a success of the industry.

Market Conditions

An investigation into the market conditions for live and dressed hogs existing in the Calgary district, cannot fail to convince the most sceptical of the great profit that may be derived from hog raising. A careful examination

has been made of market prices for hogs for the past couple of years, which have been found to range as follows:

LIVE WEIGHT.		DRESSED.	
1907, ..	5 to 8c. per lb.	1907,	6 to 9c. per lb.
1908, ..	5 to 7c. per lb.	1908,	6 to 9c. per lb.
1909, ..	6½ to 7½c. per lb.	1909,	8½ to 9c. per lb.

An important question to be decided before anyone engages in the swine industry, is what type of hog will be the most profitable to produce. Packers have divided them into three classes: The thick or lard type; the medium thick, and the bacon type. For each one there is a large market available fully equal to the volume of production. The market for the thick hog is confined chiefly to the north country, which has a somewhat sparse population with a limited purchasing power per capita. It is an important market. It is not, however, an unlimited market and it is not good business to produce any class of live stock beyond the consuming ability of the market available. The production of this class of hogs should, therefore, be given only a moderate encouragement.

The market for the moderately thick animal is confined chiefly to the mining and lumbering districts of Northern Alberta and British Columbia and to certain rural districts which have not as yet become sufficiently established to supply their own wants. This market is also a limited one. So long as the class of animals which go to supply this market is not produced beyond the limit of its power of consumption, they will find a ready sale and will command a price equal to that of any other type. But once this limit is exceeded, the medium thick hog as well as the lard hog will be discriminated against when offered for sale.

By far the largest market for our cured pork is provided by the urban population of Alberta and our sister Province of British Columbia and also by Great Britain. Once Alberta becomes an exporting country, as she must become within a few years, we will have in Great Britain an unlimited market for our cured porks of high quality. These markets will accept nothing but the flesh from hogs of the bacon type; that is, of hogs having a long and deep side and yielding a large percentage of lean meat. As this market is a very extensive one it is practically impossible to overload it and the type of hog which goes to supply it may be produced in large numbers, without fear of having them discriminated against.

Winter Wheat and Hogs

The extensive winter wheat fields of the Bow River Valley are annually yielding their increasing golden harvest, which ultimately finds its way to the Pacific ports for export to feed the hungry multitudes of other countries. Our winter wheat farmers are exceedingly prosperous, but it is a question whether they have commenced to reach the limit of their possibilities.

No person who has had any experience at all in stock raising will maintain for one moment, that it pays to sell wheat at less than 65 cents per bushel, when experience has demonstrated that, by selling grain in the form of pork, 80c. to \$1.10 per bushel can be realized with economic management, in addition to the enhanced value of the farm as a result of live stock feeding. It may be interesting to note that investigations by Professor Henry show, that it takes from 300 to 500 lbs. of corn which he proves by experiment has no better hog feeding value, pound for pound, than wheat and produces a much inferior quality of pork, to produce 100 lbs. of gain, or an average of 420 lbs. of wheat (seven bushels) for 100 lbs. of gain. The price of pork in Southern Alberta has not been below \$4.25 per hundred during the past six years. Wheat converted into pork at \$4.25 per hundred, live weight, would realize 60 cents per bushel; at \$5.00 per hundred, 71 cents per bushel; at \$6.00 per hundred, 86 cents per bushel and at \$7.00 per hundred, \$1.00 per bushel. Supplementing the wheat with alfalfa, rape or tares pasture in summer and roots in winter, the number of pounds of grain required to produce 100 lbs. of pork can be greatly reduced, and the value per bushel realized correspondingly increased.

Experiments conducted at the Ohio Agricultural Station show wheat to be an excellent feed for economical pork production. In these investigations the daily gain per pig fed wheat was 1.39 lbs., while those fed corn only increased 1.29 in weight. A mixture of the two grains has the same result as wheat fed alone. A bushel of wheat produces 13.70 pounds of pork, while a bushel of corn only produces 12.30 lbs. The hogs ate more wheat per day than corn, so that wheat was shown to be a more valuable feed than corn, even allowing the gain per bushel to be the same and not taking into consideration the much higher quality of wheat fed pork.

Barley in Swine Feeding

The alfalfa and the clovers of the irrigated farms of the Bow Valley give a splendid foundation for successful pork production. An abundance of small grains, particularly barley, is also produced and can be fed economically to hogs.

Barley is of so much interest and importance in the production of prime pork that it demands more than passing notice. This grain has not been relied upon in America as the principal part of the hog fattening ration, but the practice of Danish farmers and the results of experiments may be studied by the Bow Valley feeders with profit.

The Danish bacon, which figures so prominently in the English market, is produced mainly from barley and dairy by-products. At the Ontario Agricultural College Professor Day has found barley so valuable in the production of prime export bacon, that it is now used as the standard with which other grains are compared. In his experiments to determine the nature and causes of "soft" pork, Professor Shutt found, that the best bacon produced was by a ration in which barley constituted at least one fourth of the whole amount.

Field Peas for Finishing Swine

Extensive reference has been made elsewhere to the great possibilities of fattening sheep on irrigated field peas in the Bow Valley. Some authorities claim, and are apparently able to substantiate their position, that Field Peas may be even more profitably fed to hogs than to sheep.

A bushel of peas will put on as much pork as a bushel and a third of corn. It is easier to raise fifty bushels of peas under irrigation in the right kind of soil and in the right climate, than it is to raise 40 bushels of corn in the "corn belt." The Colorado Agricultural College puts the average cost of feeding and irrigating an acre of peas at \$1.50 to \$2.50. The harvesting is done by the hogs themselves. There is no cost of cultivation. Results have been accorded reaching as high as 650 pounds of pork per acre from hogs grazed on peas. Pea fed pork commands a premium at the packing houses. Pea fed bacon is the finest pork product obtainable.

The Swine Pasture

The common practice of placing a hog in a small enclosure and stuffing him with grain not only produces soft pork, containing a large portion of fat, but increases the cost of feeding and management very materially and economics in live stock feeding must be constantly kept in view in order to secure the largest possible returns on the capital invested.

A good many feeding experiments have been made, the result of which generally tends to show the superiority of pen feeding over the open field method for quick results. It should be borne in mind, however, that these experiments were made under the direction of an expert. Our observation has been, that in the hands of the average farmer, the results are often the reverse of that shown by the experimenters. Where land is cheap, labor high and none too skillful and where the settler does his own farming and marketing, we prefer and do not hesitate to recommend the field method; principally because it permits the hog to take care of itself, and correct the blunders and escape injury that may be caused by the neglect and irregularities of his master. The field method, however, necessitates a supply of succulent pasture.

The natural prairie provides little food suitable for the hog. In those places where irrigation is available, however, this difficulty is readily solved. Alfalfa, of course, stands easily at the head of forage plants suitable for swine pasture, as has been previously pointed out. A very good substitute is winter rye for growing pigs. Sown in July, it will furnish an excellent forage from the first of September till the snow covers the ground and from the time the snow leaves until the first of June. For the three summer months, oats, beardless barley or rape also make an excellent pasture.

It is the boast of the Bow River Valley that the climatic conditions are such that expensive outbuildings on the farm

may be safely dispensed with. It is a great mistake for the newcomer to think that to start in the hog business it is necessary to have anything elaborate in the way of accommodation. A few small, frame buildings, containing two or three farrowing pens six feet each, built of boards with the cracks battened, and a roof that does not leak, will answer the purpose admirably. If they are built on skids and can be drawn around to different pastures wherever needed, it will be found a great convenience.

POULTRY

Poultry rearing on the irrigated farm, may either be prosecuted as a leading business or as a side issue. In the agricultural portions of the State of Colorado, thousands of small irrigated holdings are devoted exclusively to market gardening and poultry farming. There is a large and profitable field in Southern Alberta for the industrious and experienced poultry raiser. A few acres in the Bow Valley and a few hundred chickens, will yield a good income. Where hens toes do not freeze and roosters' combs retain their glory throughout the entire year, there is no reason why chickens should not multiply and prove profitable. And they do. With eggs never lower than 25 cents and generally ranging from 35 cents to 60 cents per dozen in the Calgary market, nothing further need be said regarding this valuable branch of the Bow River Valley irrigated farm.

It is generally conceded that the primary conditions for successful poultry raising, are reasonable mildness of climate, abundance of sunshine and dryness of atmosphere. These conditions are all present in the highest degree in Southern Alberta.

The Profitable Hen.

(FARM AND RANCH REVIEW).

Some interesting statistics were compiled a few years ago by the "Rural New Yorker," bearing on the poultry industry. We quote the following from the columns of that periodical:

It might be said that the American poultry earned enough in one year to buy all the silver and gold that were dug out of the mines, all the sheep in the country and all the wool they made, and, in addition, the total crop for the year of buckwheat, rye, barley and potatoes. This year's earnings of the poultry would have bought all the milch cows in the country, which are valued at \$263,955,545. The total value of all minerals mined in this country in 1894, including iron, gold and silver, was \$218,168,788. The total coal product of that year was valued at \$166,280,472, or about the same as the egg crop of last year. The total state and county taxes for the entire Union in 1890 were \$143,86,007; so that the hens earned enough to pay the

entire state and county taxes, with \$150,000,000 left to pay for the tobacco crop, the rye crop, and a half a dozen other crops thrown in.

"Run an eye over the following tables and see what Uncle Sam's poultry did in 1895:—

Earnings of poultry	\$290,000,000
Value of cotton crop	239,164,640
Value of wheat crop	237,938,998
Value of swine	186,529,745
Total school expenditures	178,215,536
Value of oat crop	163,655,068
Total pensions	139,280,978
Value of potato crop	78,984,901
Total of interest on mortgages	76,728,077
Value of tobacco crop	35,574,220"

The above throws a new light on the despised hen, and presents her in the role of a "mortgage lifter."

This is the season of poultry shows and poultry talk. During the recent show at Calgary, a representative of the Review had an interesting talk with Mr. A. W. Foley, Poultry Superintendent of Alberta, the gist of which we present to our readers for careful consideration.

"In considering the investment, the percentage of profit obtained from wheat raising in Alberta does not begin to compare with that which some of our farmers are making out of poultry, and, what is more, Alberta is, without a doubt, one of the most favorable districts on the continent for the prosecution of this most profitable of industries," said Mr. Foley, to whom is due in a large measure the interest that has been aroused in the poultry industry in Alberta. He is confident that in time Alberta will not only supply its own needs in the matter of poultry and eggs, but will become an enormous per capita exporting area, of these products. In further conversation, Mr. Foley pointed out, that no other province in Canada is doing as much to foster the poultry industry as Alberta, whose Government realizes that there is no portion of Canada which offers the natural advantages for the upbuilding of the industry as does that province. A climate that aids very materially in egg production, coupled with the enormous local and British Columbia demand, creates possibilities for profits which can scarcely be equalled anywhere else.

The formation of poultry associations is encouraged by every means possible. The Government goes so far as to pay the prize money offered at poultry shows up to \$300. A poultry school is to be established, and will offer the farmers short courses covering all that is taught in the agricultural colleges in regard to poultry rearing.

Mr. Foley referred to the prices received for fancy stock at the recent show of the Calgary Poultry Association. Sales of birds shown were made at prices ranging from \$25 to \$50, and, in fact, the demand was so keen the purchasers could not be supplied. Eggs from show hens were contracted for at from \$3.00 to \$5.00 per setting. This is a striking example of how residents of the city were making money out of

poultry. Mr. Foley mentioned an instance of big money in poultry in Southern Alberta. A Mr. McEwan, an experienced breeder, averaged a net return for the season of \$2.02½ from each of his hens. This was, of course, made possible only by the high prices which prevailed for eggs.

The Review man by this time exhibited strong symptoms of "hen fever." He got busy with his pencil and rapidly figured out, by a simple process of multiplication, how many McEwan hens would be required to enable him to retire from active business and keep an automobile. He decided to pursue the subject further and interviewed a number of dealers in the city of Calgary.

The manager of a large jobbing house said: "For another two generations this province will probably have to import poultry and eggs. The influx of population, rural and urban, to Alberta is unprecedented in the history of any country. It precludes all possibility of our supplying the local demand for many years. From 30 to 40 cars of dressed birds from the east were distributed throughout Alberta and British Columbia last year. This represents, together with the eggs imported, a sum exceeding a quarter of a million dollars.

The Manager of the Hudson's Bay Company said: "Wholesalers, during the entire year, bring in carload after carload of eggs from Ontario for distribution throughout Alberta and British Columbia. There is no reason why we should not be exporting instead of importing poultry and poultry products, especially when we consider that the price of eggs will average at least 30 cents per dozen throughout the year. City people seem to appreciate more readily than the farmer the possible profits of the poultry industry. They are rapidly going in for the raising of chickens wherever possible. It is, however, the farmer who has the opportunity to make the most profit."

Messrs. Copas & Emerson, grocers, stated: "There is no reason why we should annually import two-thirds of our eggs from Ontario. Hens here lay throughout the year, and, at the present time (January) the poultry men are disposing of their surplus eggs at 60 cents a dozen. With our unexcelled conditions for the raising of poultry, such a proposition should surely appeal to Southern Alberta farmers."

Live Stock Markets.

There is no question in which the farmer producer is more keenly interested, than that of markets. Markets and colonization generally go hand in hand. With the influx of settlement, railway construction commences, and, with the increase of output, markets for every class of agricultural products are developed.

The revelations in regard to the operations of the "Beef Trusts" of the United States, are still fresh in the public mind. The American farmer is beginning to realize that he is held firmly in the grasp of a monopoly, whose policy is

not to quite destroy "the goose that lays the golden egg," but to feed it just sufficiently to keep it alive and producing. It is a matter for congratulation that Western Canada has escaped the organization of a monopoly in the handling of its agricultural commodities.

The live stock and meat industry of the United States, is perhaps the most highly organized business in the commerce of that country, and it is, therefore, admitted, that the "Beef Trust" can afford to pay a reasonably large price for live stock of all kinds and still make its enormous profits. The industry in Canada is, naturally, not developed to the same extent. We have not a multitude of overcrowded manufacturing centres and an ever-increasing non-producing population to supply. At the same time, farm values for agricultural products in Alberta, compare very favorably with values at points in the United States, similarly situated. With the enormous strides the live stock industry is making in Southern Alberta, and the opening up of large packing establishments, there is no reason to suppose that within comparatively few years, the market conditions on the Canadian side of the line will not be at least equally as good as those on the American side, and, what is more to the point, any hint of unfair or illegal conspiracy on the part of those handling such products, will immediately result in legal action on the part of those in authority, and it may be mentioned that, once the machinery of the law is put in operation in Canada, conspiracy or unfair trade conditions, very quickly bow to the decision of the courts and public opinion. This, at least, has been Canada's record so far. Several trade conspiracies have been effectually "nipped in the bud" in Canada within the last few years, and the railways are under the strictest supervision by the Canadian Railway Commission, which has the most unlimited powers.

The "private car line," which has been responsible for such enormous transportation charges on perishable agricultural products in the United States, is an unknown quantity in Canada. The Canadian Pacific Railway owns and operates absolutely, its own refrigerator cars, and icing charges and other transportation charges in connection with such special cars are based absolutely on the cost of operation, with a reasonable percentage for profit added.

Commodious stock yards are provided at all feeding and resting points along the main and branch lines of the Canadian Pacific Railway. A general live stock agent pays particular attention to the movements of live stock trains, and every facility is given shippers to get their animals to the market in the shortest possible time and with the least possible amount of shrinkage.

While the time is not, as yet, ripe for the concentration of the Western Canadian cattle business at one or two points, with daily markets, there can be no doubt that we are within measurable distance of that period in our development. Commodious stock yards are available at Calgary, where periodical sales of cattle and horses take place. The Calgary market

will very soon develop into one of the most important live stock markets in Canada. In the United States, the feeding fields generally lie remote from the ranching country. Such being the case, feeders are shipped from Montana and other western states to Chicago and then finished in the "Corn Belt." In Western Canada, the greatest feeding field will, undoubtedly, be the Bow Valley east of Calgary, and presently the unfinished cattle from every portion of Alberta will be shipped as feeders to Calgary, and then put through the finishing process on the Alfalfa meadows of the Irrigation Block. Such a development will place settlers east of Calgary in the most advantageous position possible, with regard to obtaining the necessary feeders and finally disposing of the finished article.

Customs and Quarantine

Settlers are allowed to bring in free of duty, wearing apparel, also household goods and farm machinery that has been in use for at least six months, one animal each of neat stock or horses for each ten acres of land purchased up to 160 acres, and one head of sheep for each acre. Cattle, horses and sheep will be passed only upon a certificate of a quarantine inspection officer. Swine are subject to quarantine and should not be brought into Canada.

Live Stock Administration and Improvement in Alberta

There is probably no more efficient agricultural organization in America than the live stock interests of the Province of Alberta. A large number of breeders' associations have been instituted, and they have done an enormous amount of good work, vigorously backed up by the Provincial Government, in improving the various breeds of live stock in Alberta and developing markets.

The Cattle Breeders' Association has conducted at Calgary annual sales of purebred cattle, at which as many as 350 animals were sold by auction in one year. These annual sales have been on a very large scale, and have also been the means of finding a ready cash market for the Alberta breeders of purebred cattle. As the animals are shipped to Calgary from any portion of Alberta for a nominal fee of \$2.00 per head, and are returned to any part of Alberta for \$4.00 a head, the buyers find it very convenient to purchase at the association sales owing to the favorable transportation facilities. Previous to the organization of these sales, the number of pure bred cattle breeders was very small, whereas they now number into hundreds. Part of the increase is, of course, due to the natural development of the country, but a considerable portion of the credit is due to the work of the Alberta Cattle Breeders' Association. This association also holds a pure

bred cattle show in conjunction with the annual spring auction sale.

The Horse Breeders' Association has been active in the interests of the horse industry, holding at Calgary annual spring stallion shows, which have been a distinct success, and at which horses are shown which would do credit to any horse show in Canada. This association has also been the means of inducing the British Government to send out remount purchasing commissions to Western Canada on two or three occasions.

The Sheep and Swine Breeders' Associations also give attention to any matters which would help their respective industries. Soon after organization these associations started recording pedigrees in Alberta, which work was continued until the records were handed over to the Canadian National Live Stock Record Association at Ottawa some three years ago. The Sheep Breeders' Association has held two auction sales of pure bred sheep for the purpose of assisting in supplying the market for the breeders of pure bred sheep, and also to assist in inducing the ranchers to purchase pure bred in the place of grade rams.

The Executive Committees of the Alberta Live Stock Associations also have charge of the Alberta Provincial Fair Stock Show, which was organized four years ago, and which has annually become a more important factor in the agricultural life of the province. The Associations are assisted financially by the Dominion and Alberta Departments of Agriculture. This show is held in Calgary each spring, and is attended by breeders from all over Western Canada.

Some years ago, the Provincial Government instituted a system of expert stock judging at all the agricultural fairs in the province, the Government supplying the judges, who were generally leading breeders from the Eastern provinces or from the United States, absolutely disinterested, and whose decisions are accepted without question. This move has met with the hearty support of all breeders, who recognize the value of such expert services.

Another important step taken by the Government was to pass an Act, under which the pedigree of every stallion standing for public service, should be registered in the Department of Agriculture. All stallions in Alberta travel under their true colors. If a stallion is a grade animal, the fact must be made apparent on all advertising matter issued by his owner. If he is pure bred and registered, a certificate to that effect is issued by the Government, which guarantees his breeding. In this manner farmers are amply protected and the results have been most gratifying. This system has been copied in the States of Wisconsin, Illinois, and elsewhere, and it is regarded as the most advanced legislation of its kind in America.

The Government and the people of Alberta recognize the live stock industry as one of the mainstays of the agriculture of the province, and every possible step has been taken to safeguard the interests of breeders, and to advance the same in every possible way by judicious legislation and by educational work.